TOP 300 High Level Data Interpretation Questions for SBI PO/Clerk 2019
DI Score Booster (with Video Solutions)

Dear All, this DI Score Booster were Prepared by IBPSGuide Team Specially for SBI PO/Clerk Mains 2019, which consists of 300 Questions (60 Sets) with Video Solutions. Kindly share this PDF to all your friends.

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Set-1 : Boats & Stream

Directions (1 - 5): Read the following passage and answer the given questions

Day 1: A person covers 200 km along the stream and 150 km against the stream. The difference between the time taken to cover upstream and downstream is 10 hours.

Day 2: A person covers 40 km less than the previous day in along the stream and distance covered against the stream is equal to the distance covered by the same person in day 3 along the stream. Time taken to cover downstream distance is 8 hours less than the upstream distance.

Day 3: Distance covered along the stream is 40 km more than the distance covered against the stream which is equal to the distance covered by a person on day 1 along the stream. He takes 6 hours more to cover upstream than the downstream distance.

Day 4: Time taken to covers 200 km along the stream and 100 km against the stream is same as the total time taken by the same person on day 3.

The speed of stream on day 1, 2, 3 and 4 is 15kmph, 10 kmph, 20 kmph and 20 kmph respectively.

1) What is the difference between the total distance covered along the stream and total distance covered against the stream for all the days together?
a) 120 km   b) 110 km   c) 150 km   d) 160 km e) 180 km

2) Sum of the speed of boats on day 2 and day 3 together is what percentage more/less than the sum of the speed of stream on day 1 and day 4 together?
a) 120
b) 160
c) 100
d) 200
e) 250

3) What is the ratio between the distance covered on day 2 and day 4 together and the distance covered on day 1 and day 3 together? (Downstream + upstream)
a) 80:81

b) 73:75
c) 21:23
d) 70:79
e) 43:42

4) In which of the following day he covers more distance?
a) Day 1
b) Day 2
c) Day 3
d) Day 4
e) Day 1& 2

5) If he covers 160 km along the stream and 140 km against the stream on day 5 and the speed of stream and boat is same as on day 2, then find the total time taken to cover the whole distance
a) 12 hrs   b) 11 hrs   c) 13 hrs   d) 14 hrs   e) 10 hrs

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2

Set 02 : Time and work (Statement type)

Directions (6 - 10): Study the following graph carefully and answer the given questions.

The table shows the number of days taken by Swathi to complete the given percentage of work and the time ratio of Swathi to Shivani to complete the whole work.

Job Name	Percentage of a work done by Swathi	Number of days taken by Swathi	Days ratio of Swathi to Shivani to complete the whole work alone
A	20%	5	5: 4
B	50%	15	6:5
C	40%	12	2: 1
D	15%	3	5: 6
E	30%	6	5: 4

6) Find the number of days taken by Sumaya to complete the Job-C alone?

Statement I: Swathi and Shivani started working to complete Job-C, Sumaya also joins with them to

complete the work 4 days before the actual time taken by Swathi and Shivani working together.

Statement II: Swathi started working to complete Job-C with 75% of her original efficiency. After some days Sumaya joins with her and completed Job-C in 30 days. The ratio of the number of days taken by Swathi and Sumaya to complete Job-C is 2 : 1.

a) Only statement I alone is sufficient to answer
b) Only statement II alone is sufficient to answer
c) Either statement I or II alone is sufficient to answer the question
d) Both statements I and II alone are sufficient to answer the question
e) Both statements I and II alone are not sufficient to answer the question

7) Find the total wage to complete Job-B?

Statement I: Swathi and Shivani started working to complete Job-B with their 20% and 25% less than the original efficiency respectively. The ratio of the number of days taken by Swathi and Shivani to complete Job-B is 3 : 4. The difference between their wages is Rs. 300.

Statement II: Shivani started working to complete Job-B. After 6 days swathi also joins with her and increased her efficiency by 20%. Swathi left the work 5 days before the work was completed and get Rs. 8400 as wage.

a) Only statement I alone is sufficient to answer
b) Only statement II alone is sufficient to answer
c) Either statement I or II alone is sufficient to answer the question
d) Both statements I and II alone are sufficient to answer the question
e) Both statements I and II alone are not sufficient to answer the question

8) Find the total number of days taken to complete Job- A?

Statement I: Shivani started working to complete Job-A and after 5 days Janani joins with her. The ratio of the number of days they worked to complete Job-A is 35: 12.

Statement II: Sumi is 25% more efficient than Swathi to complete Job-A. They worked alternatively starting with Sumi to complete Job-A.

a) Only statement I alone is sufficient to answer
b) Only statement II alone is sufficient to answer
c) Either statement I or II alone is sufficient to answer the question
d) Both statements I and II alone are sufficient to answer the question
e) Both statements I and II alone are not sufficient to answer the question

9) Find the number of days taken by Krish alone to complete Job-D?

Statement I: Shivani and Krish started working to complete Job-D and the ratio of the number of days worked by Shivani to Krish is 5: 2.

Statement II: Shivani and Krish completes the Job-B in (375/88) days less than the total number of days taken by Shivani and Swathi working together till the work completed.

a) Only statement I alone is sufficient to answer
b) Only statement II alone is sufficient to answer
c) Either statement I or II alone is sufficient to answer the question
d) Both statements I and II alone are sufficient to answer the question
e) Both statements I and II alone are not sufficient to answer the question

10) What is the efficiency ratio of Janavi to Kamali?

Statement I: Shivani started working to complete Job- C and after 4 days, Janavi joins with him and after few days Janavi replaced by Kamali. The remaining work was completed in 5 days.

Statement II: Janavi and Kamali started working together to complete Job-B and completed the work same as the number of days taken by Shivani and Swathi working together.

a) Only statement I alone is sufficient to answer

b) Only statement II alone is sufficient to answer

c) Either statement I or II alone is sufficient to answer the question

d) Both statements I and II alone are sufficient to answer the question

e) Both statements I and II alone are not sufficient to answer the question

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Set 03 : Time and Distance

Directions (11 - 15): The graphs below shows distance travelled by different cars and time taken by them:

Percentage distance travelled by different Cars

- A 20%
- B 10%
- C 25%
- D 20%
- E 10%
- F 15%

Percentage distribution of time taken by different cars

- A 15%
- B 25%
- C 20%
- D 10%
- E 17%
- F 13%
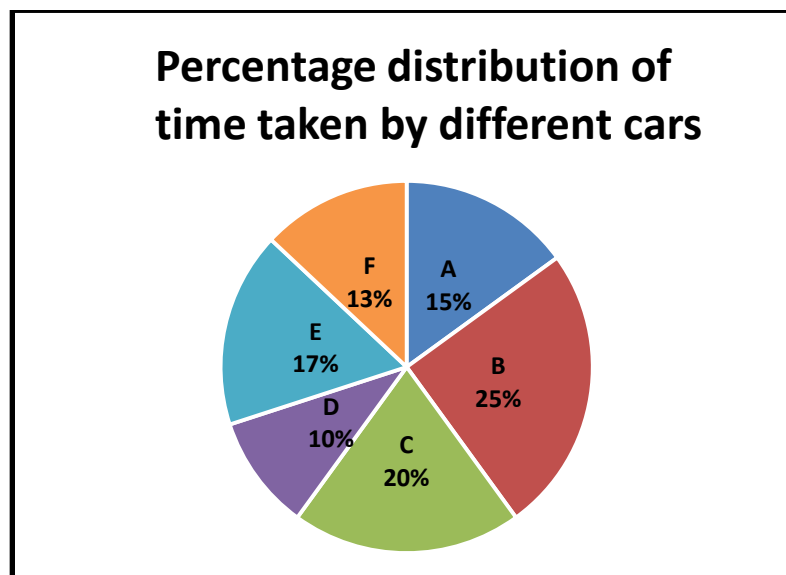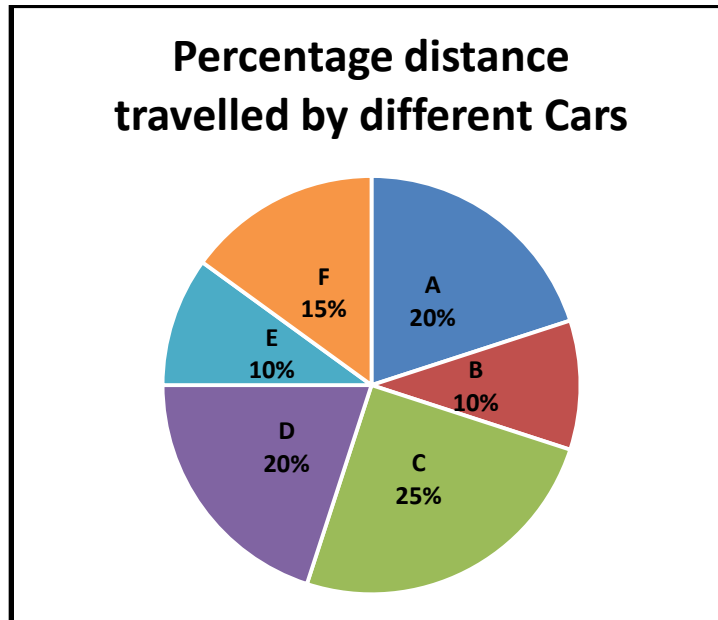
Note: The entire questions given below are independent from each other.

11) If the difference between the distance travelled by car C and car F is 160km while the speed of car C is 80 kmph then find the speed of car D?
a) 128 kmph
b) 143 kmph
c) 90 kmph
d) 120 kmph
e) 126 kmph

12) If the total distance travelled by all the cars is 1800 km and the time taken by car F is 2 hours less than the time taken by Car E then find the percentage by which the speed of car D is more/ less than the speed of car C?
a) 70% more
b) 25% more
c) 67% less
d) 60% more
e) 13% less

13) If the speed of car A is 80 kmph and the total distance travelled by all the cars is 1500 km then find the speed of car C?

a) 75 kmph
b) 90 kmph
c) 100 kmph
d) 120 kmph
e) None of these

14) If the total distance travelled by all the cars is 2000km while car B travelled 3/5 of the distance at a speed of 60kmph and the remaining at a speed of 20 kmph then find the total time taken by car B?
a) 8 hours b) 10 hours   c) 6 hours d) 12 hours
e) 4 hours

15) If the total time taken by all the cars is 40 hours and the difference between the speed of car A and C is 5 kmph then find the distance travelled by car F?
a) 240 km
b) 390 km
c) 400 km
d) 140 km
e) 360 km

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Set 04 : Probability

Directions (16 - 20): Study the following graph carefully and answer the given questions.

The bar graph shows the probability percent of randomly drawing a different colour balls (Brown, green, black, violet and red) from two bags A and B.
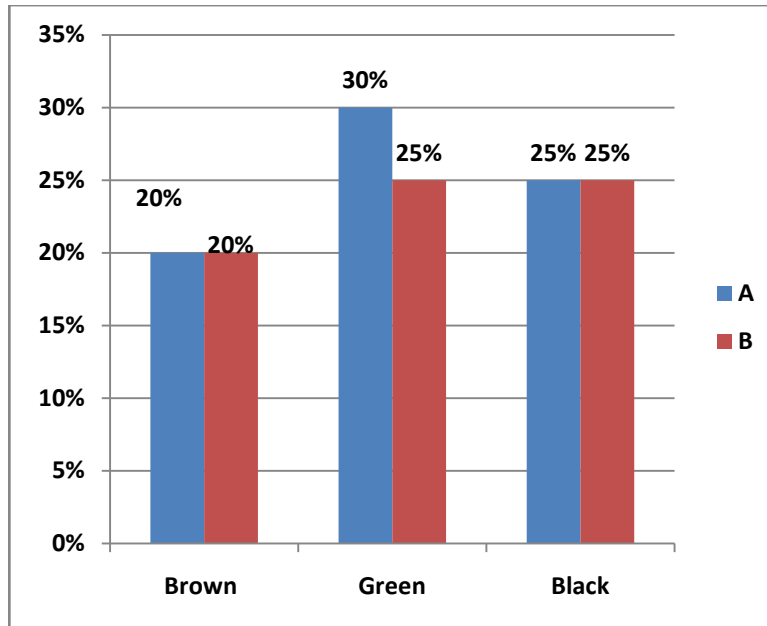
Note: 1: Total number of violet colour balls in bag A is 4 and total number of red color balls in bag B is 8.

Note 2: Probability of drawing a red colour ball from bag A is 3/20.

Note 3: Probability of drawing a violet colour ball from bag B is 1/6.

16) If x black balls are taken out from bag B and put into bag A and now the probability of selecting a black ball from bag A is 1/3, then what is the probability of selecting a green ball from bag B after transferring?

a) 2/11
b) 3/11
c) 5/11
d) 4/11
e) 7/11

17) If one ball from each bag is drawn at random, then what is the probability of the event, that one brown ball is from bag A and one violet ball is from bag B?

a) 1/8
b) 1/25
c) 1/24
d) 1/30
e) 1/40

18) If one ball from each bag is drawn at random, the probability of red ball from bag A is what percentage of the probability of brown ball from bag B?
a) 75%
b) 45%
c) 50%
d) 60%
e) 80%

19) What is the ratio of probability of drawing three green colour balls from bag B at random to the probability of drawing four brown colour balls from bag A at random?
a) 1478: 59
b) 1213: 171
c) 1711: 78
d) 129: 71
e) None of these

20) If x black and 2x green colour balls are taken out from bag A and put into bag B, and now probability of selecting green colour ball from bag B is 1/3. Find the value of 'x'
a) 6
b) 2
c) 4
d) 3
e) 5

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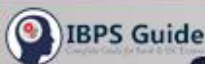Follow us: Telegram ,   Facebook ,   Twitter ,   Instagram , G+

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Set 05 : Mixture and Allegation

Directions (21 – 25): Study the following information carefully and answer the questions give below:
The following table contains information about seven mixtures. Some data in the table are missing.

Mixtures	Total quantity (in Litres)	Milk:Water	Quantity sold (in litres)	Remaining mixture (in litres)	Milk added (in litres)	Water added (in litres)	Milk : Water (in final mixture)
A	84	7:5	—	60	—	5	3:2
B	—	5:4	27	81	5	—	5:4
C	96	5:3	24	—	—	3	2:1
D	78	7:6	39	—	9	—	3:2
E	112	4:3	—	28	—	8	3:2
F	—	15:16	31	93	5	—	1:1
G	136	9:8	34	—	—	2	6:5

21) Quantity of milk in the final mixture A is what percent of amount of water in the final mixture B?
a) 85.5%
b) 72.5%
c) 112.5%
d) 98.5%
e) None of these

22) Find the respective ratio of amount of milk in final mixture C and amount of water in final mixture D.
a) 5:2 b) 4:3 c) 3:1 d) 3:2 e) None of these

23) Another mixture H contains amount of milk equal to 20% more than the amount of milk in the final mixture E and water equal to 40% more than the amount of water in the final mixture E. Find the difference between total quantity of mixture H and final quantity of mixture E.

a) 12 litres
b) 14 litres
c) 15 litres
d) 18 litres
e) None of these

24) Find the sum of the quantities of milk in all the final mixtures.
a) 515 litres
b) 415 litres
c) 325 litres
d) 225 litres
e) None of these

25) A mixture K contains amount of milk equal to 25% more than the amount of milk in final mixture G and amount of water equal to 10% less than the amount of water in the final mixture C. The milkman sold 34 litres of the mixture and added 10

litres of milk and 12 litres of water to the remaining mixture. Find the difference between quantity of milk and quantity of water in the final mixture K.

a) 25 litres
b) 30 litres
c) 40 litres
d) 50 litres
e) None of these

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Set 06 : Radar graph based DI

Directions (26 - 30): Study the following and answer the given questions.

The following pie chart shows that the volume filled by pipe A and pipe B respectively on different days of the week.

Total volume filled by pipe A = 1000 litres

Total volume filled by pipe B = 500 litres
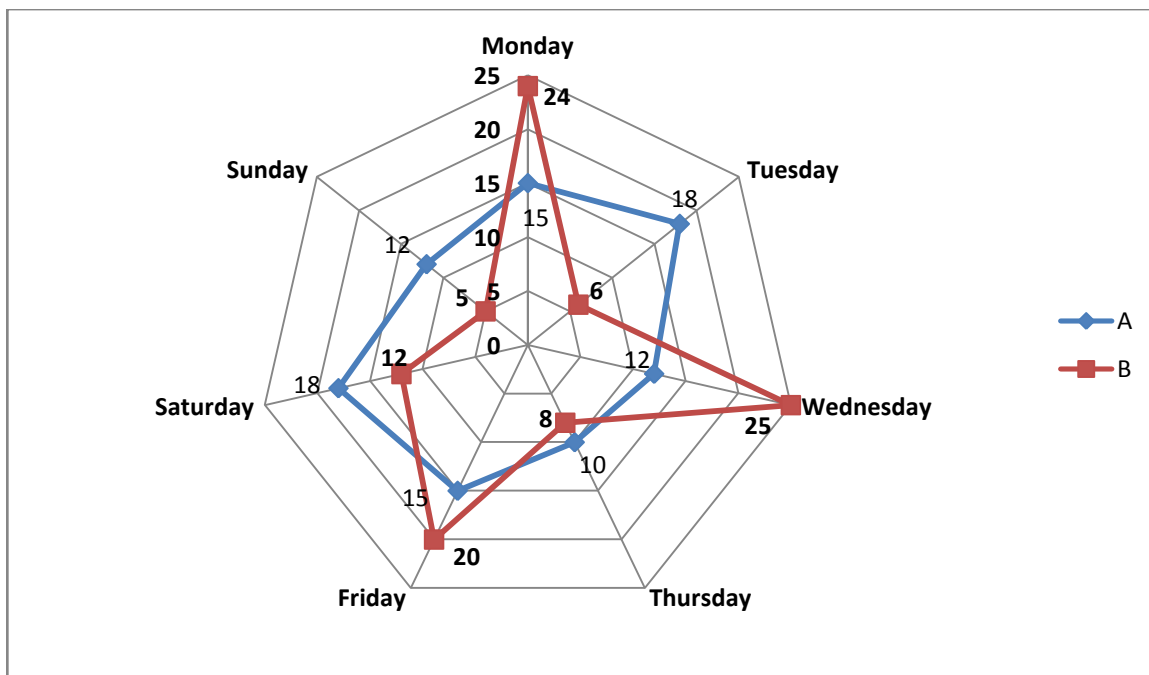
The following table shows that the number of hours the pipes was open on a given day.

Days	Pipe A (in hours)	Pipe B
Monday	-	-
Tuesday	5	4
Wednesday	8	5
Thursday	8	-
Friday	10	5
Saturday	-	6
Sunday	6	-

26) If pipe A's rate on Monday is equal to pipe B's rate on Thursday, and if pipe A on Monday takes 5 hours more than pipe B on Thursday to fill the tank, how long was pipe B open on Thursday?
a) 54/33 hours
b) 32/55 hours
c) 20/11 hours
d) 21/11 hours
e) 43/22 hours

27) On a particular day, pipe A was opened at Thursday's rate and pipe B was opened at Saturday's rate, what percentage of volume of a 2700 liter tank would they fill in 2 hours?
a) 1.7%   b) 1.5%   c) 2.4%   d) 1.8%   e) 3.9%

28) What is the difference between the number of hours required by pipe A and pipe B to completely fill their respective tanks on Friday?
a) 9 hours
b) 8 hours
c) 3 hours
d) 5 hours
e) 2 hours

29) How long would pipe A and pipe B take to fill a tank of volume 200 litres on Wednesday?
a) 7 hours   b) 5 hours   c) 4 hours   d) 2 hours
e) 9 hours

30) What is the ratio of Pipe A's rate on Tuesday to pipe B's rate on Saturday?
a) 18:5   b) 13:6   c) 18:7   d) 23:4   e)13:6

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Set 07 : Profit & Loss

Directions (31-35): Study the following graph carefully and answer the given questions.
The table shows the discount rate of four different items in five different shops.

Shops	Item 1	Item 2	Item 3	Item 4
A	25%	15%	_	30%
B	20%	_	16%	_
C	_	12%	_	15%
D	10%	30%	20%	_
E	30%	_	10%	20%

Note: Selling price for each item is same in all the shops

31) Quantity I: If the ratio of the marked price of item 1 and item 4 in shop E is 15: 14, and the marked price of shop D in item 1 is Rs. 7000. Find the selling price of item 4 in shop E?

Quantity II: In item 2, if marked price in shop C is 25% more than the cost price and the profit percentage of shop C is 10% which is equal to 280. Find the cost price of shop D if marked price of item 2 in shop D is 10% more than the cost price?

a) Quantity I > Quantity II
b) Quantity I ≥ Quantity II
c) Quantity I < Quantity II
d) Quantity I ≤ Quantity II
e) Quantity I = Quantity II (or) Relationship cannot be determined

32) Quantity I: Item 3, cost price of all the shops is Rs. 4800 and the marked price is 40%, 50% and 25% more than the cost price in shop B, D and E respectively. Find the total selling price of shop B, D and E together

Quantity II: If the selling price of item 4 of all the shops is Rs. 9520, find the total marked price of shop A, C and E?

a) Quantity I > Quantity II
b) Quantity I ≥ Quantity II
c) Quantity I < Quantity II
d) Quantity I ≤ Quantity II
e) Quantity I = Quantity II (or) Relationship cannot be determined

33) Quantity I: In shop E, Cost price of item 1 is Rs. 800 more than the cost price of item 4 and the marked price of item 1 and 4 is 60 % and 40 % more than the

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cost price respectively. Find the selling price of item 4 if the selling price is same for both the items?

Quantity II: If the marked price of item 3 in shop B is 20% more than the cost price, which is 6000, find the marked price of item 3 in shop D?

a) Quantity I > Quantity II
b) Quantity I ≥ Quantity II
c) Quantity I < Quantity II
d) Quantity I ≤ Quantity II
e) Quantity I = Quantity II (or) Relationship cannot be determined

34) In shop D, if the ratio of marked price in item 1, item 2 and item 3 is 56: 72: 63 and the marked price of item 1 in shop B is Rs.6300.
Quantity I: Find the marked price of item 2 in shop A
Quantity II: Find the marked price of item 3 in shop E
a) Quantity I > Quantity II

b) Quantity I ≥ Quantity II
c) Quantity I < Quantity II
d) Quantity I ≤ Quantity II
e) Quantity I = Quantity II (or) Relationship cannot be determined

35) Quantity I: Find the marked price of item 4 in shop A. If the marked price of item 4 in shop E is Rs. 6300
Quantity II: Find the marked price of item 2 in shop C. If the marked price of item 2 in shop D is Rs. 4400
a) Quantity I > Quantity II
b) Quantity I ≥ Quantity II
c) Quantity I < Quantity II
d) Quantity I ≤ Quantity II
e) Quantity I = Quantity II (or) Relationship cannot be determined

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Set 08 : Geographical based DI
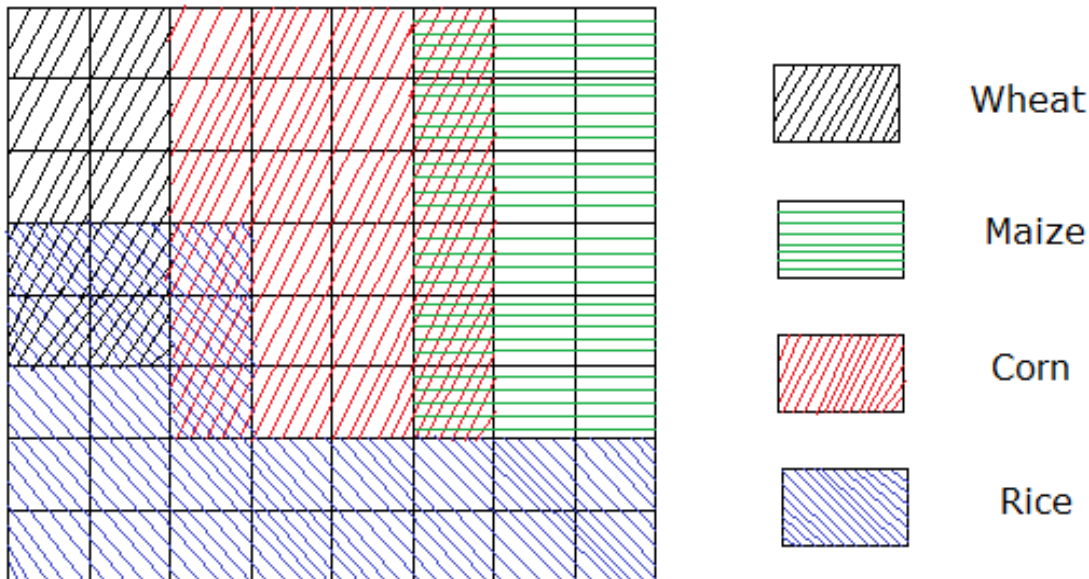
Directions (36 - 40): Study the following information carefully and answer the given questions.

Magi has a large farm land in the shape of a square that is further divided into 64 smaller squares called sectors. Each sector is cultivated with either one or two crops. The pattern of crop cultivation distributed over his land in the year 2015 is as shown below.

The capacity of each sector to produce a particular crop depends on whether one or two crops are being grown in that sector. The table below gives the production capacity of a sector for each of the 4 crops.

Crop	When grown singly (In tons)	When grown along with another crop (In tons)
Wheat	120	80
Maize	80	60
Corn	100	72
Rice	150	96

36) Total production of Wheat in the year 2015 is approximately what percentage more/less than the total production of Rice in the same year?

a) 55 % less   b) 55 % more   c) 69 % less

d) 69 % more   e) 82 % more

37) If 50 % of the area cultivated with only rice is now used to cultivate wheat as well, then what is

the new ratio of the production of rice to the total production of wheat?
a) 1441: 881   b) 1521: 883   c) 1443: 880
d) 1483: 691   e) None of these

38) If the cost price of corn and Maize is Rs. 1200 per ton and Rs. 1540 per ton
Quantity I: Find the total selling price of corn if it is sold at 15% profit?
Quantity II: Find the total selling price of Maize if it is sold at 25% profit?
a) Quantity I < Quantity II
b) Quantity I ≤ Quantity II
c) Quantity I > Quantity II
d) Quantity I ≥ Quantity II
e) Quantity I = Quantity II (or) Relationship cannot be determined

39) Which crop recorded lowest production when grown along with another crop?
a) Rice   b) Corn   c) Maize   d) Wheat
e) Both (a) and (c)

40) In 2016, the production of Wheat, Corn, Rice and Maize is increased by 60%, 40%, 25% and 50% from previous year respectively, then find the total production of all the crop together
a) 12547 tons
b) 11255 tons
c) 14523 tons
d) 13459 tons
e) None of these

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Set 09 : Problem on trains

Directions (41 – 45): Study the following graph carefully and answer the given questions.
The table shows the speed of different trains in km/hr.

Trains	Speed (km/hr)
A	45
B	72
C	_
D	_
E	90
F	_

41) Train B started at 9.00 am from station X towards Y. After two hours, Train E started from station Y towards X. The two trains are expected to cross each other at 1.30 pm. Owing to a signal problem arising at 12 noon, the speed of each of them was reduced by the same quantity and they crossed each other at 4.30 pm. What is the new speed of train started from station X?
a) 36 km/hr
b) 54 km/hr
c) 18 km/hr
d) 24 km/hr
e) 27 km/hr

42) 300 m length of Train A passes point P completely. At the same time, a motorbike starts from point P with the speed of 70 km/h. When it exactly reaches the middle point of the train A, the train increases its speed to 60 km/h and motorbike reduces its speed to 65 km/h. How much distance will the motorbike travel while passing the train completely?

a) 2.45 km
b) 2.54 km
c) 3.12 km
d) 2.37 km
e) None of these

43) Train C's journey is disrupted due to an accident on its track after it has travelled 30 km. Its speed then comes down to $4/5^{th}$ of its original and consequently it runs 45 min late. Had the accident taken place 18 km farther away, it would have been 36 min late. The original speed of the train C is what percentage of the speed of train E.
a) 200/3%
b) 100/3%
c) 50/3%
d) 190/3%
e) 250/3%

44) Train D departs from Ahmadabad at 6 pm for Bombay. At 9 pm a train F, whose average speed exceeds that of the train D by 15 km/h, leaves

Bombay for Ahmadabad. Two trains meet each other mid-route. At what time do they meet, given that the distance between the cities is 1080 km?

Statement I: 400 m length of the train D crosses a pole in 32 sec.

Statement II: 600 m length of train F crosses a pole in 36 sec.

a) Only I

b) Only II

c) Either I or II

d) Both I and II

e) Neither I nor II

45) Quantity I: If 4.5 km length of the train D crosses a pole in 6 minutes, then find the speed of the train D

Quantity II: If 6 km length of the train F crosses a pole in 6 minutes, then find the speed of the train F

a) Quantity I > Quantity II

b) Quantity I < Quantity II

c) Quantity I ≥ Quantity II

d) Quantity I ≤ Quantity II

e) Quantity I = Quantity II (or) Relationship cannot be determined

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Set 10 : Caselet

Directions (46 - 50): Read the following information carefully and answer the given questions

In a class of 321 students 321 stationary items are distributed such that every student gets exactly 1 item. There are six different items that are distributed among these students namely Pen, Pencil, Erase, Scale, Note and Sharpener. The following line – graph provides information about the number of students who received Pen, Pencil, Erase, Scale, Note and Sharpener.
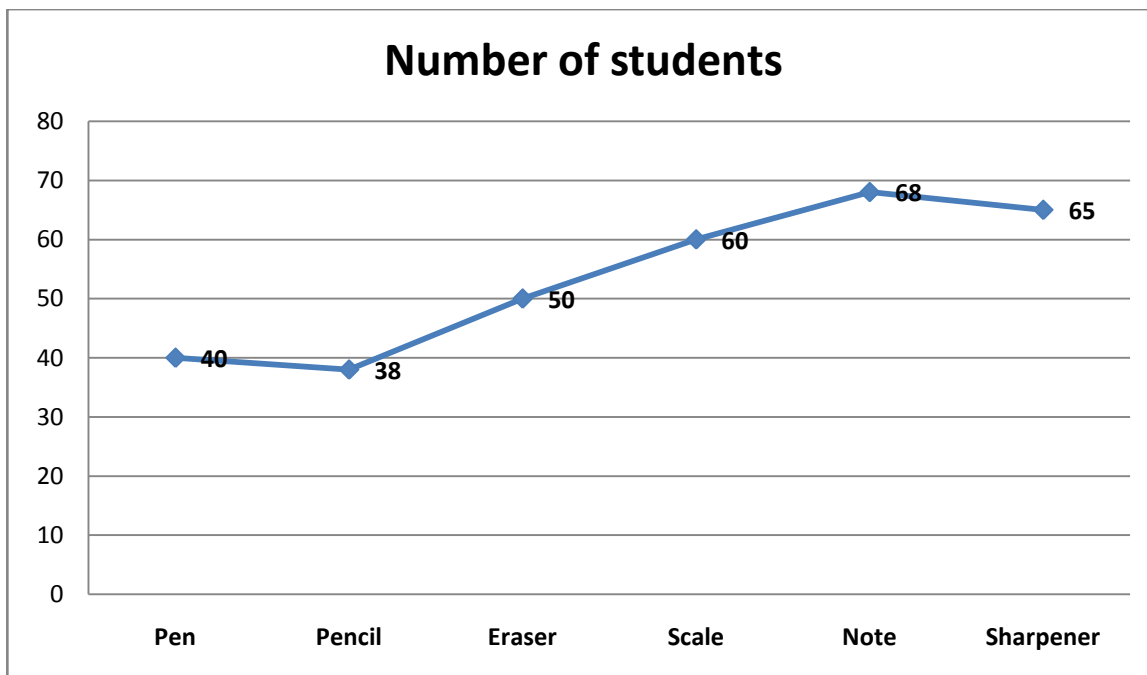
The students exchanged the items among themselves and after they stopped further exchanging, it was noted that no student had the same item that he/she had earlier. Even after the exchange every students has exactly one item.

Among the students that originally had pen, the number of students now having Pencil, Note and Sharpener is 7, 12 and 9 respectively.

Among the students that originally had Pencil, the numbers of students now having Eraser and scale is 3 and 9 respectively.

Among the students that originally had Eraser, the number of students now having Pen, Note and Sharpener is 4, 9, and 11 respectively.

Among the students that originally had Scale, the number of students now having Pen, Pencil, Eraser is 8, 7 and 9 respectively.

Among the students that originally had Note, the number of students now having Pen, Pencil and Sharpener is 7, 6and 20 respectively.

Among the students that originally had Sharpener, the number of students now having Eraser and Note is 18 and 16 respectively.

46) Among the students that originally had Pen, at least how many students must now have Scale?
a) 5 b) 3   c) 2   d) 1   e) 6

47) If out of the students that originally had Pen, the number of students now having Scale is 8, then find out of the students that now have Eraser?
a) 3   b) 2   c) 4   d) 1   e) 5

48) If among the students that originally had Note, the number of students now having Eraser is 1 more than the number of students now having Scale, then find the difference between the number of the students that now have Sharpener and Scale
a) 4   b) 3   c) 5   d) 6   e) 12

49) If among the students that originally had Sharpener, the number of students now having Eraser is twice the number of students now having Pen, then find out among the students that now having Scale which is one student more than the number of students that now having Pen?
a) 10   b) 9   c) 16   d) 15   e) 18

50) If among the students that originally had Pencil, the number of students now having Note is same as the number of students now having Scale, then find among the students that originally had Sharpener, the number of students now having pen
a) 7   b) 9   c) 8   d) 6   e) 10

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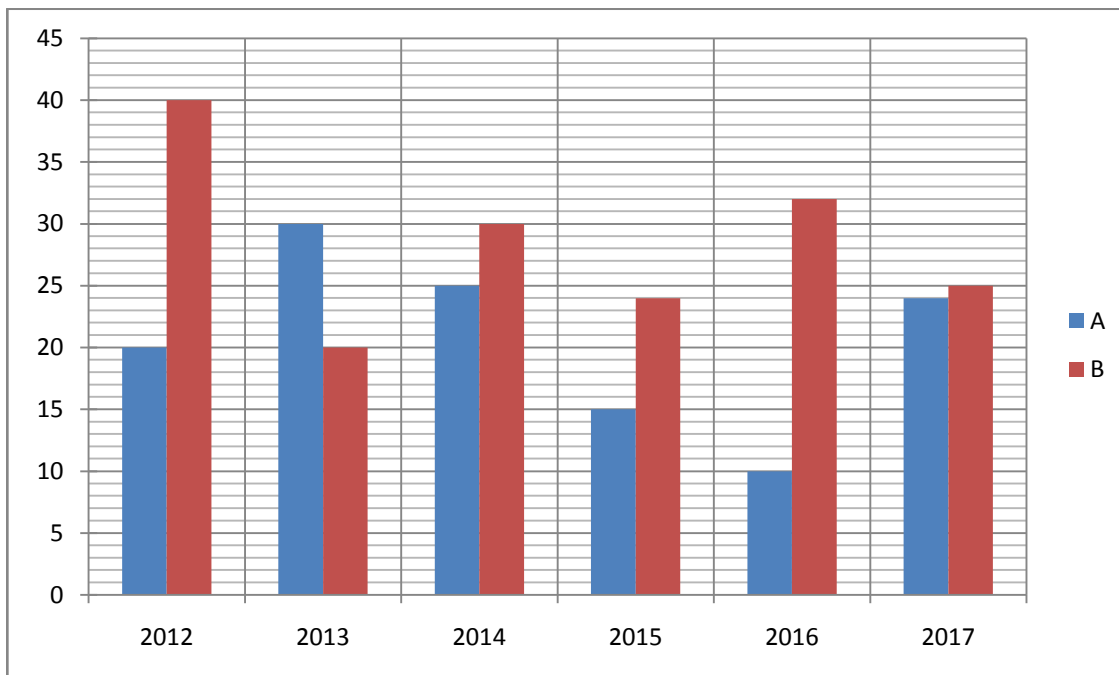## Set 11 : Income and Expenditure based DI

Directions (51-55): Study the following information carefully and answer the given questions.
The bar graph shows the percentage of profit earned by two different companies in different years.
The table shows the expenditure of company A and B (in lakhs)

Years	Expenditure of company A	Ratio of expenditure of company A to B
2012	120	5: 6
2013	80	4: 5
2014	100	4: 5

2015	75	3: 4
2016	150	3: 2
2017	200	2: 3

51) Quantity I: In 2018, total income of company A and B is 500 lakhs and the expenditure of both companies is equal. Profit of company B is 20 lakhs more than the profit of company A and the profit percentage of company A is 20%. Company A's profit is what percentage less than the company B's profit?

Quantity II: Total income of company A and B in the year 2014 is approximately what percentage more/less than the total income of company A and B together in the year 2016?

Quantity III: Total expenditure of company B in the year 2013 and 2014 together is what percentage more/less than the total expenditure of company A in the year 2012 and 2014 together?

Which of the following should be placed in the blank spaces of the expression Quantity I__ Quantity II ___ Quantity III from left to right with respect to the above statements?

a) <, <

b) <, >

c) >, >

d) =, <

e) >, =

52) Quantity I: Find the difference of total income of company A in the year 2015, 2016 and 2017 together to that of total expenditure of company B in the year 2012, 2013 and 2014 together?

Quantity II: What is the average income of company B in the year 2014 and 2015 together?

Quantity III: In 2012, total expenditure of company A is 20% more than the previous year. The income of company A in the year 2013 is 20% less than the income of company A in the year 2011. Find the profit of company A in the year 2011?

Which of the following should be placed in the blank spaces of the expression Quantity I __ Quantity II ___ Quantity III from left to right with respect to the above statements?

a) =, <

b) <, >

c) >, =

d) =, =

e) ≥, >

53) Quantity I: In 2015, If the expenditure of company A is decreased by 25% and the income of company A is increased by 30%. Find the new profit percentage of company A?

Quantity II: In 2016, If the income of company B is decreased by 20% and the profit is decreased by (x) %. Find the value of x, if the expenditure is same.

Quantity III: Total income of company B in the year 2013 is what percentage more/less than the total expenditure of company A in the same year?

Which of the following should be placed in the blank spaces of the expression Quantity I __

Quantity II ___ Quantity III from left to right with respect to the above statements?

a) <, <

b) <, =

c) ≤, <

d) =, <

e) >, >

54) Quantity I: In Company A, expenditure in the year 2012, 2014 and 2016 is increased by x %, (x+10) % and (x+15) % respectively. Find the new income of company A in the year 2012, 2014 and 2016 together, if the total expenditure of company A in the year 2012, 2014 and 2016 together after increment is 439.5 lakhs and the profit percentage is same as previous?

Quantity II: In Company B, the income in the year 2013, 2015 and 2017 is decreased by 20%, 24% and 32% respectively. Find the new expenditure in the year 2013, 2015 and 2017 together if the profit percentage is same as previous?

Quantity III: Find the total income of company B in the year 2014, 2015 and 2016 together?

Which of the following should be placed in the blank spaces of the expression Quantity I__ Quantity II ___ Quantity III from left to right with respect to the above statements?

a) <, >

b) >, <

c) >, >

d) <, <

e) =, >

55) Quantity I: Find the sum of the third highest and lowest income of company A in the given years?

Quantity II: Find the sum of the second highest and second lowest expenditure of company B in the given years?

Quantity III: Find the sum of the highest and second highest profit of company A in the given years?

Which of the following should be placed in the blank spaces of the expression Quantity I__ Quantity III ___ Quantity II from left to right with respect to the above statements?

a) >, >   b) <, <   c) =, ≥   d) <, >   e) ≤, ≥

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Set 12 : Quantity based Probability

Directions (56-60): Read the following passage carefully and answer the given questions.

Rahul has five different bags P, Q, R, S and T which contains four different colour caps viz. black, pink, red and green.

Bag P: Number of pink colour caps is 15 which is 150% of the number of green colour caps. Number of black colour caps is 80% of pink colour caps. One cap is taken and the probability of getting a pink colour cap is 1/3.

Bag Q: The ratio of the number of black colour caps to the pink is 5: 6. The ratio of the number of pink colour caps to red is 4: 5. The ratio of the number of red colour caps to green is 3: 1. Two caps are taken and the probability of getting pink and one red colour caps is 120/581.

Bag R: Total number of caps is 35 more than the total number of caps in bag P. Total number of pink and red colour caps is 50% of the total number of caps. Number of pink colour cap is 150 percentage of the number of red colour caps. The number of green colour caps is 60% of the number of black colour caps.

Bag S: Number of pink colour caps is equal to the number of red colour caps and 5 caps less than the number of green colour caps. Total number of caps in the bag is 5 more than bag P. One cap is taken and the probability of getting a black colour cap is 3/10.

Bag T: Total number of caps in the bag is 66 (2/3)% of the total number of caps in the bag P. Number of black colour caps is one-sixth of the total number of caps and is equal to the number of red colour caps. One ball is taken and the probability of getting a green colour caps is 1/3.

56) Quantity I: Two caps taken randomly from the bag S. What is the probability of getting one red and one pink?

Quantity II: Two caps taken randomly from the bag T. What is the probability of getting both are green colour?

Quantity III: 7/20

Note: The options represent the relations of Quantity I __ Quantity II __ Quantity III

A) >
B) <
C) =
D) ≤
E) ≥

a) B, C
b) C, D
c) B, B
d) A, B

e) None of these

57) Quantity I: One cap is taken randomly from bag R, S and T. What is the probability of getting a black colour cap?

Quantity II: Two caps taken randomly from bag P. What is the probability of getting at least one green cap?

a) Quantity I > Quantity II
b) Quantity II > Quantity I
c) Quantity I ≥ Quantity II
d) Quantity II ≥ Quantity I
e) Quantity I = Quantity II (or) Relationships cannot be determined

58) In bag Q, 25% of caps sold at 20% discount in which 33(1/3) % is red colour caps. Two caps taken without replacement, what is the probability

of getting one red colour cap without discount and another cap with discount?
a) 21/332
b) 23/332
c) 19/332
d) 17/332
e) None of these

59) If x green caps taken out from bag S and added to bag T, in the same way 2x red colour caps and x pink colour caps taken out from bag T and added to bag S. One cap is taken from bag S and the probability of getting black colour cap is 1/6. Find the value of 'x'?
a) 16
b) 12
c) 20
d) 10
e) None of these

60) Quantity I: Total number of black colour caps is what percentage less than the total number of caps in bag R?

Quantity II: Total number of green colour caps is what percentage less than the total number of caps in bag S?

Quantity III: Total number of red colour caps is what percentage more than the total number of caps in bag T?

Note: The options represent the relations of Quantity I __ Quantity II __ Quantity III

A) >
B) <
C) =
D) ≤
E) ≥
a) A, C
b) B, D
c) E, B
d) B, B
e) C, B

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Set 13 : Statement and Quantity based DI

Directions (61 -65): Study the following graph carefully and answer the given questions.

The figure below shows the number of cars manufactured by four companies A, B, C and D in the year 2011 – 2015. The innermost circle represents 1000 cars; the next circle represents 2000 cars, and so on. Each represents a particular manufacture and the five lines in each quadrant correspond to the years 2011 – 2015 in clockwise order.
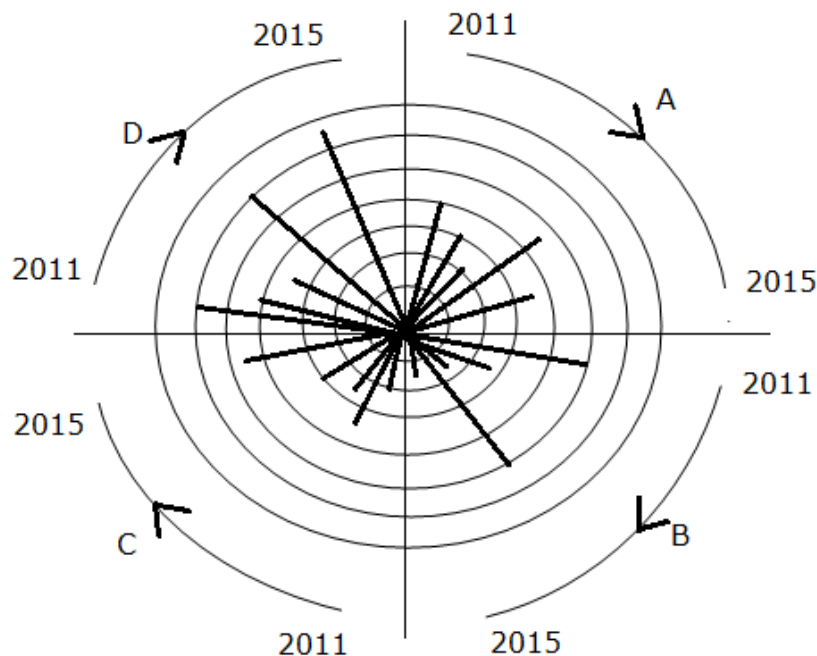
Note: If the line is between two circles it is consider as 500 cars.

The table shows the percentage of cars sold in four companies A, B, C and D and the percentage of defective cars for all the given companies.

Year	Percentage of cars sold				Percentage of defective cars
	A	B	C	D	
2011	75%	80%	90%	85%	12%
2012	80%	60%	70%	90%	16%

2013	64%	75%	80%	50%	25%
2014	56%	40%	45%	75%	24%
2015	90%	38%	60%	40%	18%

Note: Defective cars are not consider for sales

61) Find the total number of defective cars manufactured by company B and C in the year 2012 and 2014 respectively?
Statement I: Number of defective cars manufactured in the year 2012 by company B is 50 more than company C and 150 less than company A. The number of defective cars manufactured by company D in 2012 is 18% of the total cars manufactured by company C in the same year.
Statement II: Number of defective cars manufactured by company C in the year 2014 is twice the number of defective cars manufactured by company B in the same year which is 300 less than the number of cars defective cars manufactured by company D in the same year.
a) Only I alone
b) Only II alone
c) Either I or II
d) Neither I nor II
e) Both are necessary

62) Which of the following statement is true according to the given information?
I) The difference between the number of cars sold by company B in the year 2011 and the number of cars sold by company D in the year 2013 is 2250.
II) The ratio of the total cars sold by company C in the year 2014 and 2015 together to the total cars sold by company A in the year 2013 and 2014 together is 81: 76.

III) The total number of cars manufactured by company A and B in the year 2011 is equal to the total number of cars manufactured by the same company in the year 2014.
a) Only I
b) Only III
c) Both the options (II) and (III)
d) Both the options (I) and (II)
e) All the option (I), (II) and (III)

63) In which of the following year, the number of defective cars manufactured is minimum in the given years?
a) 2012
b) 2015
c) 2013
d) 2011
e) 2014

64) Quantity I: Find the total number of cars sold by company C in the given years.
Quantity II: Find the total number of cars sold by company D in the given years.
a) Quantity I > Quantity II
b) Quantity II > Quantity I
c) Quantity II ≥ Quantity I
d) Quantity I ≥ Quantity I
e) Quantity I = Quantity II (or) No relation

65) In which of the following company has maximum increased percentage in the year 2014

from the previous year (comparing the total number of manufacturing cars)?
a) A
b) D
c) B
d) C
e) None of these

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Set 14 : Probability based on New pattern

Directions (66 - 70): Study the following graph carefully and answer the given questions.

A box contains four different balls viz. Pink, Red, Black and Green colour

Boxes	Probability of drawing one pink ball	Probability of drawing one red ball	Probability of drawing one black ball	Probability of drawing one green ball
A	1/5	2/15	_	2/5
B	2/7	1/7	12/35	_
C	1/6	1/5	_	1/2
D	1/9	2/9	2/9	_
E	_	4/15	2/9	1/3

Note 1: Total number of balls in Box A is equal to the total number of balls in Box C.
Note 2: Total number of balls in Box E is 50% more than Box A.
Note 3: Total number of balls in Box B is 1 less than the total number of balls in Box D.
Note 4: Total number of balls in Box D is 80% of the total number of balls in Box E, which is 45.

66) Two balls taken randomly from Box A, C and E. What is the probability of getting both are green colour balls in one among the given boxes?
a) 3709/28710
b) 4107/28710
c) 4777/28710
d) 4909/28710
e) None of these

67) If 20% of the balls in Box A, 25% of the balls in Box D and one-seventh of the balls in Box B painted as yellow colour; after completion of the painting all the balls put into Box P and the ratio of yellow to pink colour balls in Box P is 4 : 5. Two balls are taken from Box P, and then find the probability of getting both is same colour?
a) 7/11
b) 3/11
c) 37/99
d) 49/99
e) None of these

68) If in each Box, one more colour balls are added, then find the total number of balls in each Box?
Quantity I: One ball is taken from Box B and the probability of getting blue ball is 1/6

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Quantity II: One ball is taken from Box C and the probability of getting yellow balls is 1/6

Quantity III: One ball is taken from Box E and the probability of getting brown ball is 1/10

a) Quantity I > Quantity II < Quantity III

b) Quantity I < Quantity II < Quantity III

c) Quantity I > Quantity II > Quantity III

d) Quantity I = Quantity II < Quantity III

e) None of these

69) One ball is taken from each Box. Find the ratio of the probability of getting one pink ball from Box A to that of the probability of getting one green ball from Box C?

a) 3: 4

b) 4: 5

c) 3: 2

d) 2: 5

e) None of these

70) If 50% of the balls from Box A, 20% of the balls from Box E and 2/9th of the balls from Box D drawn out and put into Box X. Find the ratio of the pink, red and blue colour balls in box X (Box X contains only three colour balls pink, red and blue)

Statement I: One ball is taken from box X and the probability of getting pink ball is 1/4

Statement II: One ball is taken from box X and the probability of getting red ball is 3/8

Statement III: One ball is taken from box X and the probability of getting blue ball is 3/8

a) Only I

b) Both I and II

c) All the three

d) None

e) Any of the two

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Set 15 : Caselet based on Boats and streams

Directions (71 - 75): Following is the information about the upstream speed and downstream speeds of a boat on different days of a week.

Monday: Downstream speed is 50% more than the upstream speed. Time taken to cover 120 km along the stream is same as the time taken to cover 80 km against the stream. If the downstream speed is increased by 10 km/hr, then the boat takes 3 hours to cover 120 km.

Tuesday: Speed of the stream is one-fourth of the speed of the boat. Time taken to cover 150 km along the stream is 5 hours.

Wednesday: Downstream speed is 100% more than the upstream speed. Time taken to cover 200 km along the stream in 5 hours.

Thursday: Stream of the speed is one – third of the speed of the boat. The difference between the downstream speed and upstream speed is 10 km/hr. Time taken to cover 140 km along the stream is same as the 70 km against the stream.

Friday: Speed of the stream is 20 km/hr which is half of the speed of the boat.

71) If on Saturday speed of boat in still water was 50% of the sum of speeds of boat in still water on Monday and Thursday and speed of stream was double the speed of stream on Monday, then how much time will the boat take to cover total upstream distance, which is average of upstream distance covered by all the boat in 5 hours in all 5 days together?
a) 8.4 hours
b) 7.2 hours
c) 6.4 hours
d) 8.8 hours
e) None of these

72) If both, speed of boat in still water and speed of stream on Wednesday are increased by 20% each, and then find the percentage increase in upstream and downstream journey time together?
Statement I: Initially, distance covered by the boat on Wednesday is 200 km along the stream and 100 km against the stream.

Statement II: Total time taken to cover downstream and upstream distance by boat on Wednesday is 10 hours.
a) Only II
b) Only I
c) Both I and II
d) Neither I nor II
e) Either I or II

73) Quantity I: Total upstream distance covered by all the given boat in all the 5 days together in 10 hours.
Quantity II: Total downstream distance covered by all the given boat in all the 5 days together in 5 hours.
a) Quantity I > Quantity II
b) Quantity I < Quantity II
c) Quantity I ≥ Quantity II
d) Quantity I ≤ Quantity II
e) Quantity I = Quantity II

74) If speed of boat in still water on Sunday was 50% of sum of the speeds of boat in still water on

Tuesday and Friday, speed of stream on Sunday was half of the speed of stream on Friday. What was the average speed of upstream and downstream journeys on Sunday?

a) 32 km/hr

b) 30 km/hr

c) 34 km/hr

d) 36 km/hr

e) None of these

75) Quantity I: Average speed of the boat on Friday is what percentage more/less than the average speed of the boat on Monday?

Quantity II: Average speed of the boat on Tuesday is what percentage more/less than the average speed of the boat on Thursday?

a) Quantity I > Quantity II

b) Quantity I < Quantity II

c) Quantity I ≥ Quantity II

d) Quantity I ≤ Quantity II

e) Quantity I = Quantity II

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Set 16 : Missing DI On Simple interest

Directions (76 - 80): Study the following information carefully and answer the given questions.

The following table shows the principle amount invested by 5 different persons in a scheme and the number of years and the rate of interest they are provided for the investment and the simple interest they earned after a certain period also given. Some values are missing here.

Persons	Principle	Number of years (n)	Rate of interest (r %)	Simple interest
A	75000	-	12 %	-
B	-	3	-	28800
C	90000	4	10 %	36000
D	-	6	8 %	-
E	40000	2	-	-

76) If the simple interest earned by D is Rs. 1000 less than the half of the principle amount invested by D, and then find the simple interest earned by D
a) Rs. 26000
b) Rs. 28000
c) Rs. 24000
d) Rs. 30000
e) None of these

77) If the ratio between the amounts invested by B to that of C is 2: 3, then find the rate of interest provided for B
a) 16 % b) 12 % c) 10 % d) 14 % e) None of these

78) If the simple interest earned by C is Rs. 9000 less than the simple interest earned by A, then find the number of years, A invested the amount
a) 4 years
b) 6 years
c) 3 years
d) 5 years
e) None of these

79) If the average amount invested by all the given persons is Rs. 63000 and the amount invested by B is Rs. 10000 more than the amount invested by D, then find the amount invested by D
a) Rs. 45000
b) Rs. 50000
c) Rs. 60000
d) Rs. 65000
e) None of these

80) If the simple interest earned by E is Rs. 320 less than the 40 % of simple interest earned by B, then find the rate of interest provided for E
a) 8 % b) 10 % c) 14 % d) 12 %
e) None of these

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Set 17 : Profit and loss based DI

Directions (81 -85): Bar chart given below shows different discount rates are given for different products of different shops, for some products discount rate is missing which you have to find out according to data given in different questions if they are necessary. Answer the following questions with the help given Bar chart. Selling price is same for a particular product (excluding cooking oil and sugar) for all shops.
(MP= market price, CP=Cost price, SP= selling price)
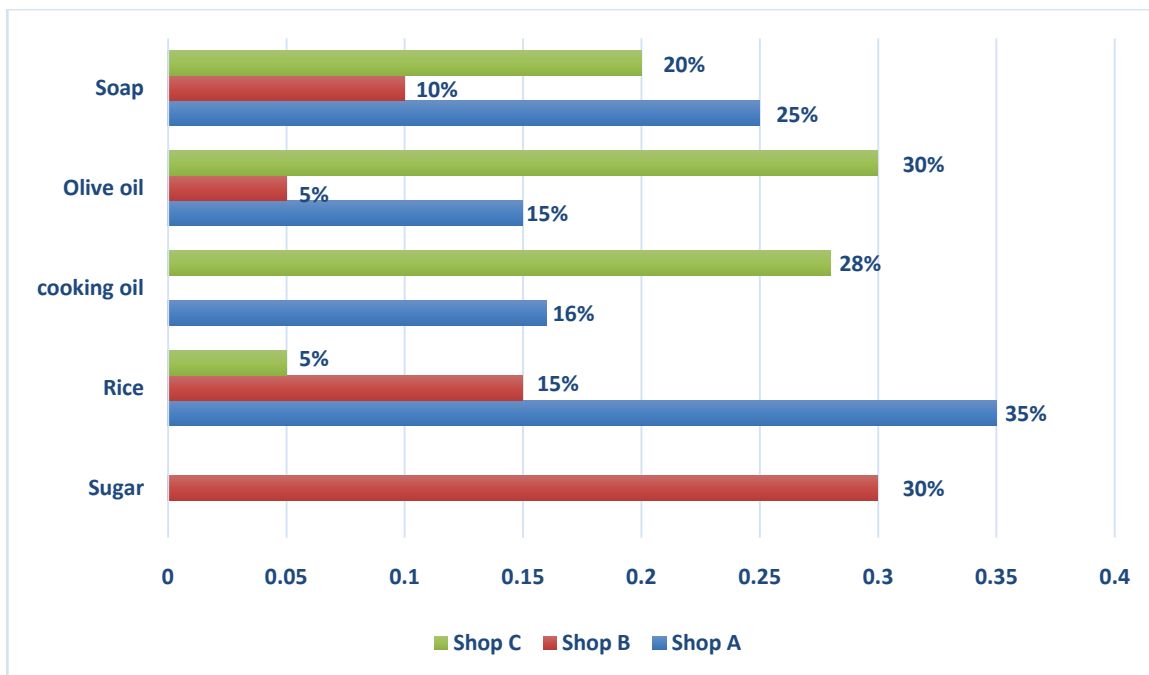
81) **If the average MP of Soap for all three shops is 3990 then find MP of soap for shop B?**
a) Rs. 3450
b) Rs. 3600
c) Rs. 4270
d) Rs. 3300
e) None of these

82) **Difference between MP of Olive oil of Shop A and shop B is Rs 504 then find MP of Olive oil for Shop C?**
a) Rs.5814

b) Rs.5678
c) Rs.4678
d) Rs.6234
e) None of these

83) **If MP of cooking oil is same for all shops and Average SP of cooking oil for Shop A and shop B is Rs 3728 and average SP of cooking oil for shop B and shop C is Rs 3368, then find SP of cooking oil by shop C?**
a) Rs.2256
b) Rs.2860

c) Rs.1890
d) Rs.2450
e) Rs.2160

84) If difference between MP and SP for rice in shop B is Rs 741 find average MP of rice of shop A and shop C?
a) Rs.6420
b) Rs.5360
c) Rs.5440
d) Rs.6640
e) None of these

85) If market price is equal for all shops for sugar. Ratio of discount for sugar of shop A and B is 1/3, difference between SP for sugar of shop A and C is Rs 780, if difference SP of shop A is 680 more than shop B, then find SP of sugar by shop C?
a) Rs.2428
b) Rs.2256
c) Rs.2786
d) Rs.2280
e) None of these

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Set 18 : Time and work

Directions (86 - 90): Study the following information carefully and answer the given questions.

The following bar graph shows the number of days taken by 5 different persons to complete a work and the table shows the ratio of total number of days taken by another 5 different persons to complete the work.

Number of days taken by different persons to complete the work
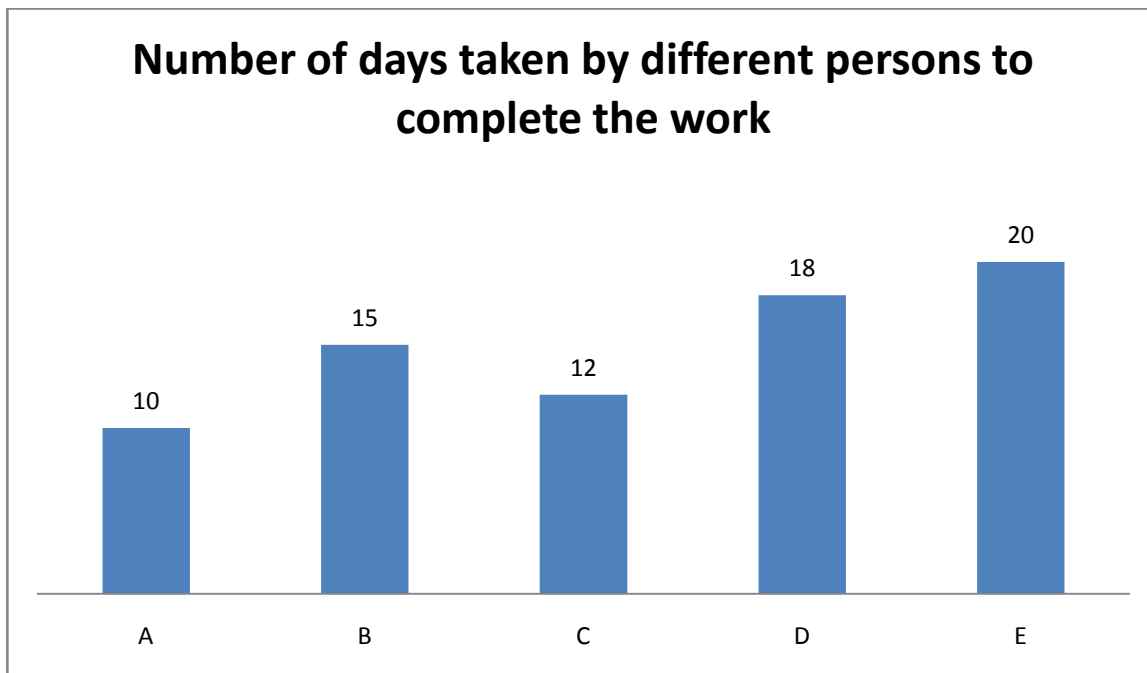
Persons	Ratio
A : P	5 : 8
B : Q	3 : 4
C : R	1 : 2
D : S	6 : 7
E : T	5 : 3

86) A and R started the work and after 5 days A left the job, R and M complete the remaining work in 3 ½ days. Find the total number of days taken by M alone to complete the work?
a) 24 days
b) 20 days
c) 18 days
d) 16 days
e) None of these

87) B and S started the work and after some days B left the job. S completed the remaining work in 9

days. The number of days after which B left the job?
a) 7 days
b) 4 days
c) 6 days
d) 5 days
e) None of these

88) B and R undertake to complete a piece of work for Rs. 7500. With the help of N, they complete the work in 8 days. Find the share of N?
a) Rs. 1500
b) Rs. 1000
c) Rs. 1750
d) Rs. 1250
e) None of these

89) A starts the work and works for 'x' days while C and E complete the remaining work in 4 1/2 days, then find the value of 'x'?
a) 4 days
b) 5 days
c) 3 days
d) 6 days
e) None of these

90) M is 50 % more efficient than D. After how many days one-third of the work is completed when both are working simultaneously?
a) 3 ¼ days
b) 1 4/5 days
c) 2 2/5 days
d) 3 ¾ days
e) None of these

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Set 19 : Permutation and Combination
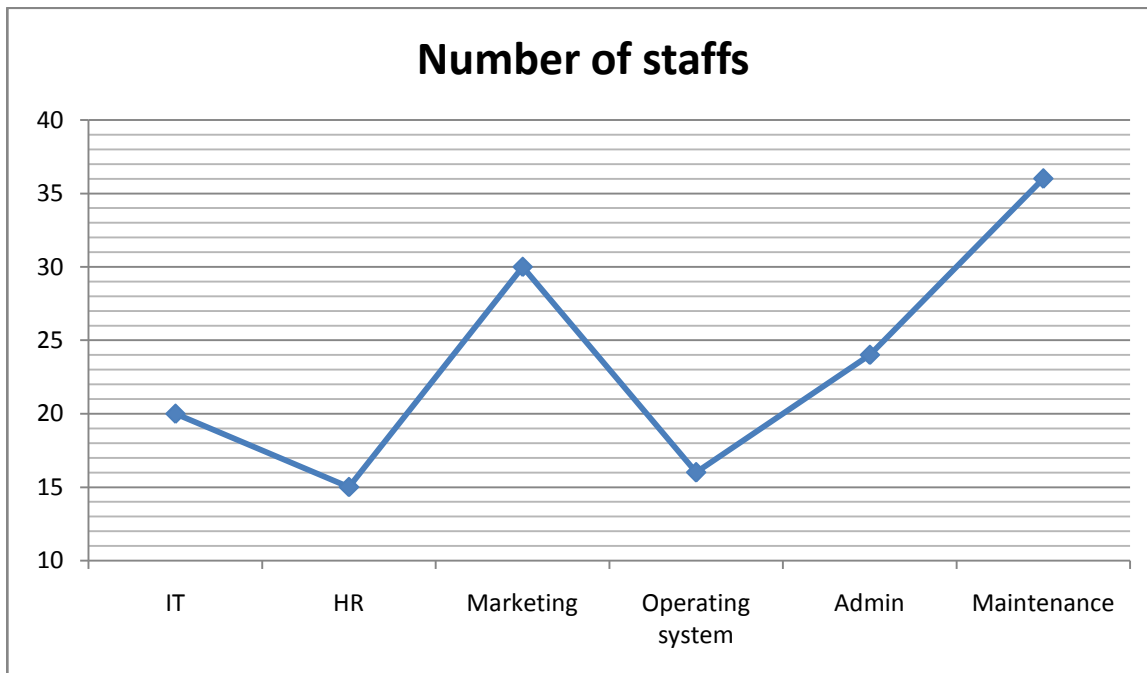
Directions (91 - 95): Study the following graph carefully and answer the given questions.

Number of staff in an office in different department is shown in the line graph.

Number of staffs

Department	Number of staffs
IT	20
HR	15
Marketing	30
Operating system	16
Admin	24
Maintenance	36

91) A team of 5 members of IT, HR and Admin department member is to be formed for a project, find the number of ways in which the team can be formed, if the team does not have 2 members of same department except Admin department?
a) 652050
b) 687900
c) 989820
d) 607200
e) None of these

92) In how many ways, a team of 4 members can be formed so that two particular IT staffs are always there in the team?
a) 6870
b) 6980
c) 7290
d) 9870
e) None of these

93) A team of 5 members is to be formed with IT and Marketing staff. Find the number of ways to do so such that the team has at least 1 member of each department?
a) 1879500
b) 1988820
c) 1960750
d) 2168910
e) None of these

94) A team of 5 members is to be formed for a project such that the team has at least one member

of each department excluding Operating system. In how many ways it can be done?
a) 7776000
b) 7767000
c) 8977000
d) 8979400
e) 6988900

95) If 6 Admin department staff's and 6 Operating system department staff's are to be seated in a row of seats (numbered 1 - 12), then how many ways they can be seated if Admin department staff's occupy even numbered seats only?
a) 1440
b) 5040
c) 1296
d) 720
e) None of these

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Set 20 : Caselet based on Probability

Directions (96 - 100): Read the following information carefully and answer the given questions.

There are two friends A and B, playing different games consisting of dices and cards. There are five types of game (i.e.) game 1, game 2, game 3, game 4 and game 5. In game 1, both of them are allowed to throw a dice alternatively. If more than 5 appear on throwing, the person is said to be the winner. In game 2, they throw a pair of dice alternatively. A wins if he gets a sum of 9 before B gets a sum of 10 and B wins if he gets a sum of 10 before A gets a sum of 9. In game 3, both of them are allowed to throw a card from a well shuffled deck of 52 cards without replacement. Any person said to win this game, if he throws a number card. In game 4, both of them are allowed to throw a pair of dice alternatively. A wins if he gets a multiple of 6 before B gets a multiple of 8 and B wins if he gets a multiple of 8 before A gets a multiple of 6. In game 5, both of them are allowed to throw a card from a well shuffled deck of 52 cards without replacement. Any person said to win this game, if he throws a letter card.

96) If B begins game 4, find the probability of B's winning in his third attempt.
a) 225/5832
b) 321/5832

c) 289/5832

d) 361/5832

e) None of these

97) If A starts the game 2, find the probability of A's winning in his second attempt.

a) 7/81

b) 8/81

c) 11/81

d) 13/81

e) 19/81

98) If A begins the game 1, find the probability of A's winning in his third attempt.

a) 125/216

b) 25/36

c) 5/216

d) 25/216

e) None of these

99) If A begins the game 3, find the probability of A's winning in his third attempt.

a) 196/2197

b) 154/2197

c) 121/2197

d) 144/2197

e) None of these

100) If A begins the game 5, find the probability of A's winning in his third attempt.

a) 216/2197

b) 288/2197

c) 252/2197

d) 361/2197

e) None of these

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Set 21 : Permutation and Combination with Probability

Directions (101 - 105): Study the following information carefully and answer the questions given below:

The following table represents number of doctors, singers, dancers and engineers in six different groups.

Groups	Doctors	Singers	Dancers	Engineers
A	6	3	--	5
B	--	2	--	7
C	8	--	6	2
D	3	6	4	--
E	--	8	10	--
F	5	7	9	3

101) A committee of five members is to be formed from group A such that the committee contains one member from each of the given four professions and remaining one member can be anyone from the given four professions. The number of ways in which this can be possible is 5040. Find the probability of selecting 2 doctors and 2 dancers from group A.
a) 1/38
b) 1/34
c) 1/36
d) 1/42
e) None of these

102) Probability of selecting one doctor from group E is 3/8 and probability of selecting one singer from group E is ¼. A committee of four members is to be formed from group E such that the committee contains 2 doctors, 1 singer and 1 dancer. Find the number of ways in which this can be possible.
a) 5280
b) 4040

c) 6040
d) 3020
e) None of these

103) A committee of six members is to be formed from group C such that the committee contains 2 doctors, 1 singer, 2 dancers and 1 engineer. The number of ways in which this can be possible is 2520. Find the respective ratio of the probability of selecting 2 singers from group C and probability of selecting 2 singers from group F.
a) 73:543
b) 67:298
c) 55:321
d) 92:399
e) None of these

104) Probability of selecting one doctor from group B is 2/9 and probability of selecting 1 singer from that group is 1/9.
Quantity I: A committee of five members is to be formed such that the committee contains 2 doctors, 1

singer, 1 dancer and 1 engineer. Find the number of ways in which this can be done.

Quantity II: A committee of five members is to be formed such that the committee contains 1 doctor, 2 singers and 2 dancers. Find the number of ways in which this can be done.

a) Quantity I > Quantity II

b) Quantity I < Quantity II

c) Quantity I ≥ Quantity II

d) Quantity I ≤ Quantity II

e) Quantity I = Quantity II or no relation can be established.

105) Find the respective ratio of total number of persons in group D and total number of persons in group F.

Statement I: Probability of selecting one doctor from group D is 1/6.

Statement II: A committee of four members is to be formed from group D such that the committee contains one member from each of the given four professions. The number of ways in which this can be possible is 360.

a) Statement I alone is sufficient to answer the question, but the statement II alone is not sufficient.

b) Statement II alone is sufficient to answer the question, but the statement I alone is not sufficient.

c) Either statement I alone or statement II alone is sufficient to answer the question.

d) Both statements I and II together are needed to answer the question.

e) Both statements I and II together are not sufficient to answer the question.

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Set 22 : Mensuration

Directions (106 - 110): Study the following information carefully and answer the questions given below:

The following table represents information regarding six different fields.

Name of fields	Shape	Side (in m)	Length (in m)	Breadth (in m)	Base/Bases (in m)	Height (in m)	Radius (in m)	Cost of flooring/ m² (In Rs.)	Cost of fencing/ m (In Rs.)
A	Rectangular		28	--				25	10
B	Circular						21	--	15
C	Square	24						20	--
D	Triangular				16	--		30	15
E	Trapezium				18, 24	30		--	20
F	Parallelogram				--	20		25	10

106) If total cost of flooring of field A is Rs.15400 and total cost of flooring of field D is Rs.5760, find the respective ratio of total cost of fencing of field A and total cost of fencing of field D.
a) 2: 3
b) 5: 8
c) 3: 5
d) Cannot be determined
e) None of these

107) If total cost of flooring of field B is Rs.34650 and total cost of flooring of field E is Rs.12600, cost of flooring/m² of field B is what percent of the cost of flooring/m² of field E?
a) 110%
b) 125%
c) 75%
d) 100%
e) None of these

108) Total cost of flooring of field F is Rs.15000 and measure of another pair of parallel sides of field F is 24m. Cost of fencing/m of field C is Rs.12/m. Find the average of the cost of fencing of field C and cost of fencing of field F.
a) Rs.986
b) Rs.1020
c) Rs.1148
d) Rs.1116
e) None of these

109) Find the relation between following two quantities.
Quantity I: If cost of fencing field A is Rs.920, find the total cost of flooring of field A.
Quantity II: Field G is circular in shape and its radius is 7 m more than the radius of field B. If cost of flooring/m² of field G is Rs.8, find the total cost of flooring of field G.
a) Quantity I > Quantity II

b) Quantity I < Quantity II

c) Quantity I ≥ Quantity II

d) Quantity I ≤ Quantity II

e) Quantity I = Quantity II or no relation can be established.

110) Find the total cost of fencing of field H.

Statement I: Field H is rectangular in shape. Total cost of fencing of field H is Rs.960.

Statement II: Length of field H is 4 m more than its breadth. Cost of flooring/m^2 of field H is Rs.22. Cost of fencing/m of field H is Rs.15.

a) Statement I alone is sufficient to answer the question, but the statement II alone is not sufficient.

b) Statement II alone is sufficient to answer the question, but the statement I alone is not sufficient.

c) Either statement I alone or statement II alone is sufficient to answer the question.

d) Both statements I and II together are needed to answer the question.

e) Both statements I and II together are not sufficient to answer the question.

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Set 23 : Mixture and Alligation

Directions (Q. 111- 115): Study the following information carefully and answer the questions given below:

The following pie chart represents percentage wise distribution of quantity of mixture of wine and water in six containers.
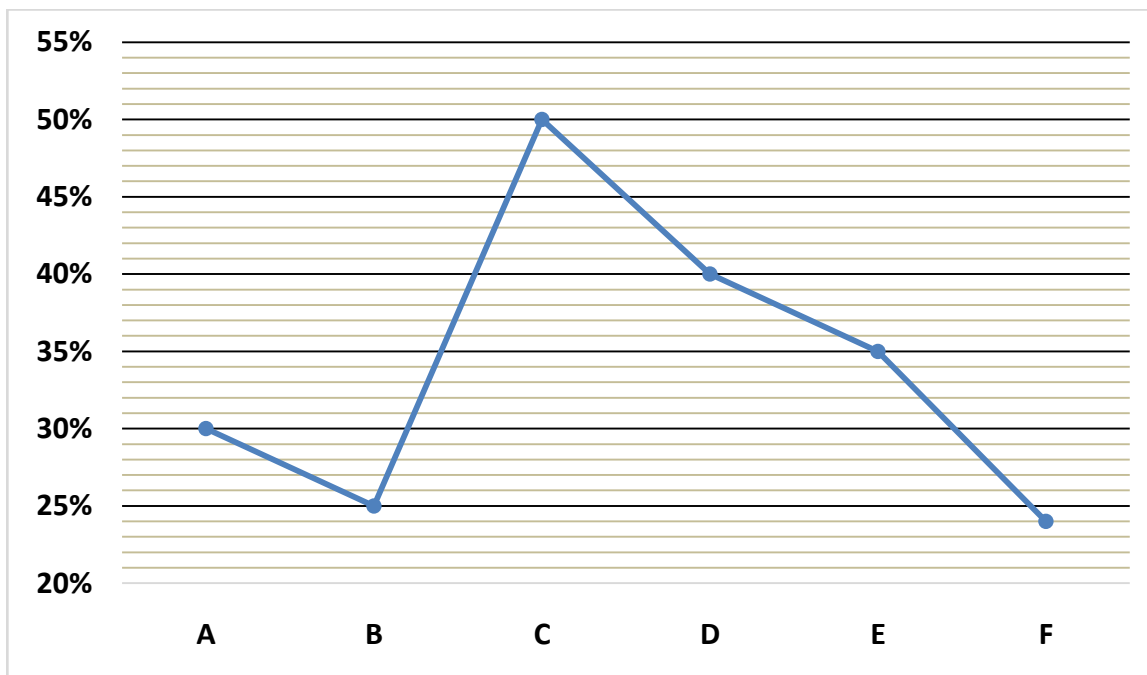
Total quantity of mixture of wine and water in six containers = 1200 litres.
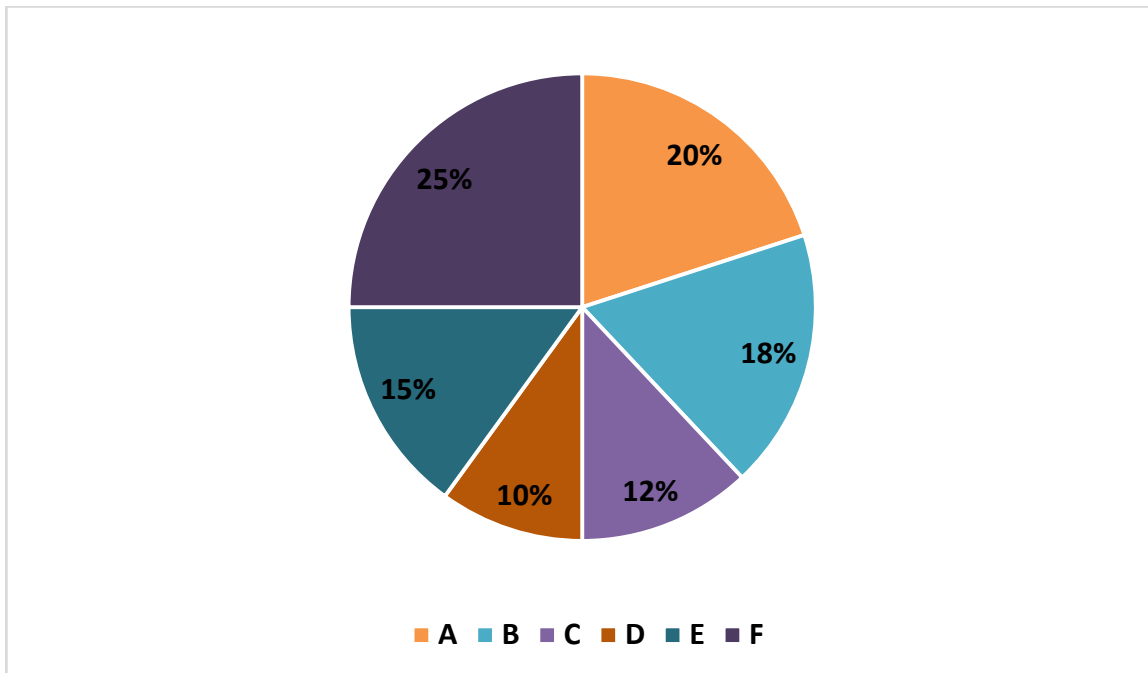
The following line graph represents percentage of water in six containers.

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111) 25% of the mixture of wine and water in container D is used in a party and 16 litres of pure wine and 14 litres of water added to the remaining mixture of that container. If 24 litres of the mixture is again used and 4 litres of pure wine added to the container, the quantity of wine in the initial mixture of container D will be what percent of quantity of wine in the final mixture of that container?
a) 95%
b) 100%
c) 120%
d) 80%
e) None of these

112) If 40% mixture of container A, 25% mixture of container C and 30% mixture of container E are mixed together in container G which contains 40 litres of pure wine and 25 litres of water, find the respective ratio of wine and water in the final mixture of container G?
a) 903 : 503
b)1603 : 907
c)1287 : 503
d)1102 : 607
e) None of these

113) Mixtures of container B and container F are mixed together in container H which was empty. 4 litres of water and 10 litres of pure wine added into it. 53 litres of the mixture is used. Find the difference between the quantity of wine and quantity of water in the remaining mixture of container H?
a) 157 litres
b) 243 litres
c) 197 litres
d) 311 litres
e) None of these

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114) Find the relation between following two quantities:

Quantity I: 40 % of the mixture in container A is used and remaining mixture of container A is transferred to container F. Find the total quantity of wine in container F.

Quantity II: 20 % of the mixture in container B is used and remaining mixture of container B is transferred to container E. Find the total quantity of wine in container E.

a) Quantity I > Quantity II
b) Quantity I < Quantity II
c) Quantity I ≥ Quantity II
d) Quantity I ≤ Quantity II
e) Quantity I = Quantity II or no relation can be established

115) Find the difference between quantity of wine and quantity of water in containers C and G together?

Statement I: Quantity of wine in container G is 25% more than the quantity of wine in container D.

Statement II: Total quantity of mixture in container G is 10% more than the total quantity of mixture in container F.

a) Statement I alone is sufficient to answer the question, but the statement II alone is not sufficient.
b) Statement II alone is sufficient to answer the question, but the statement I alone is not sufficient.
c) Either statement I alone or statement II alone is sufficient to answer the question.
d) Both statements I and II together are needed to answer the question.
e) Both statements I and II together are not sufficient to answer the question.

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Set 24 : Pipe and cistern

Directions (116 - 120): Study the following information carefully and answer the questions given below:
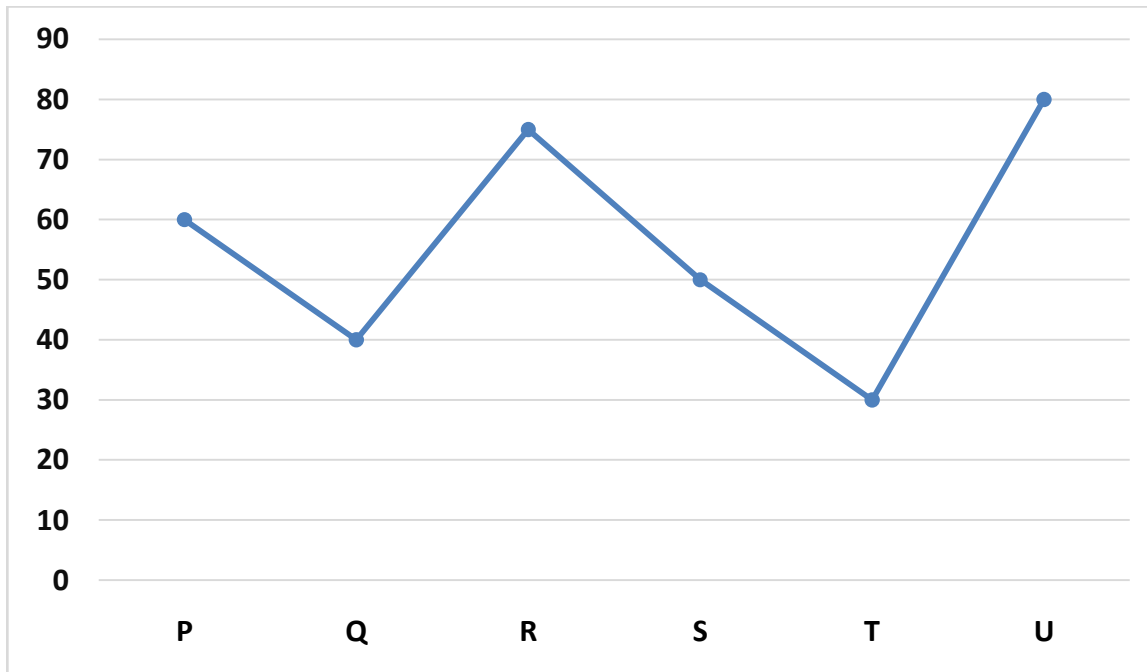
The first line graph represents time taken (in minutes) by six pipes to fill the cistern.
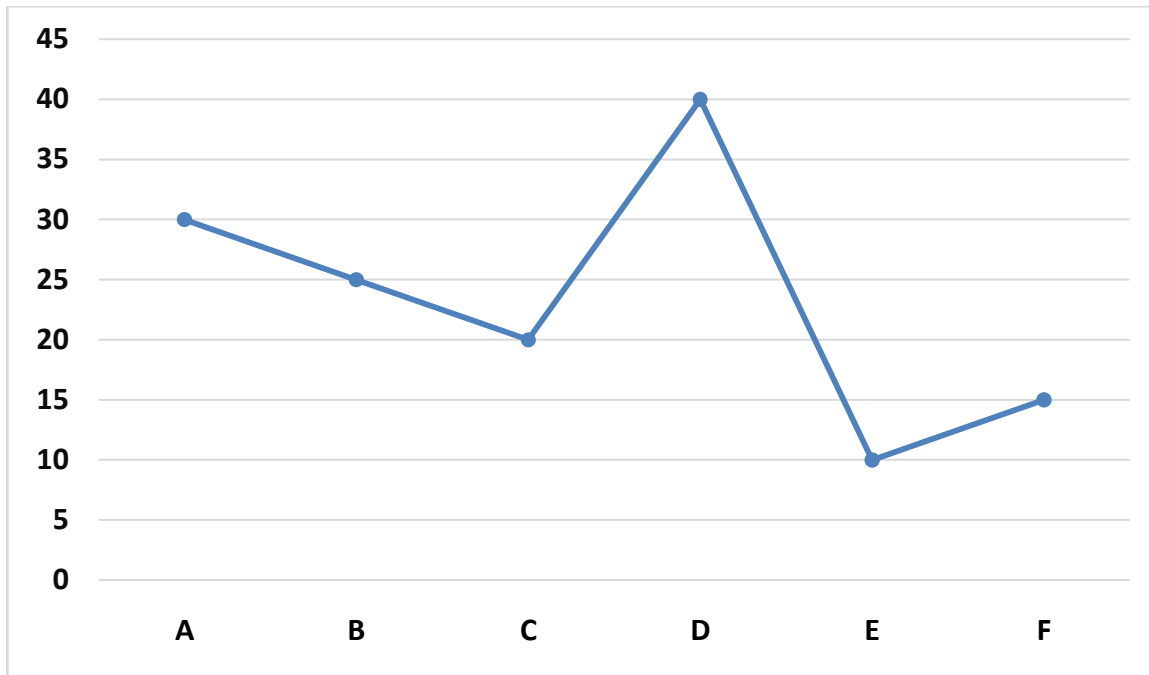
The second line graph represents time taken (in minutes) by six pipes to empty the cistern.

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116) Pipe A and pipe C are opened simultaneously and closed after 5 minutes. Then, pipe B and pipe D are opened simultaneously. Pipe B is closed before 5 minutes of filling the cistern. Find the time for which pipe B was opened?
a) 215/37 days
b) 185/43 days
c) 275/39 days
d) 290/41 days
e) None of these

117) Pipe E, pipe Q and pipe F are opened simultaneously for 4 minutes and closed. Then, pipe P and pipe U are opened for 10 minutes and closed. Find the time taken by pipe A and pipe E to fill the remaining part of the cistern?
a) 69/16 days
b) 81/15 days
c) 79/13 days
d) 75/11 days

e) None of these

118) Find the respective ratio of the time taken by pipe B, pipe D and pipe F to fill the cistern, time taken by pipe P, pipe R and pipe T to empty the cistern and time taken by pipe A, pipe C and pipe T to fill the cistern?
a) 511 : 1235 : 1721
b) 570 : 1185 : 1501
c) 413 : 1086 : 1121
d) 619 : 1175 : 1321
e) None of these

119) If Pipe G and H are inlet pipes, then
Quantity I: Pipe D, pipe U and pipe G together can fill the cistern in 16 minutes. Find the time taken by pipe P, pipe G and pipe E to fill the cistern.
Quantity II: Efficiency of pipe H is 20% more than the efficiency of pipe A. Find the time taken by pipe E, pipe H and pipe Q to fill the cistern.

a) Quantity I > Quantity II
b) Quantity I < Quantity II
c) Quantity I ≥ Quantity II
d) Quantity I ≤ Quantity II
e) Quantity I = Quantity II or no relation can be established.

120) Find the time taken by pipe F, pipe R and pipe K to fill one fourth part of the cistern, if pipe K and M are inlet pipes?
Statement I: Pipe K, pipe M and pipe T together can fill the cistern in 60/7 minutes.

Statement II: Pipe M, pipe A and pipe F together can fill the cistern in 20/3 minutes.

a) Statement I alone is sufficient to answer the question, but the statement II alone is not sufficient.
b) Statement II alone is sufficient to answer the question, but the statement I alone is not sufficient.
c) Either statement I alone or statement II alone is sufficient to answer the question.
d) Both statements I and II together are needed to answer the question.
e) Both statements I and II together are not sufficient to answer the question.

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Set 25 : Simple and Compound   Interest

Directions (121 -125): Study the following information carefully and answer the questions given below:

The first pie chart represents percentage wise distribution of amounts invested by five persons on simple interest.

Total amount invested by five persons on SI = Rs. 400000
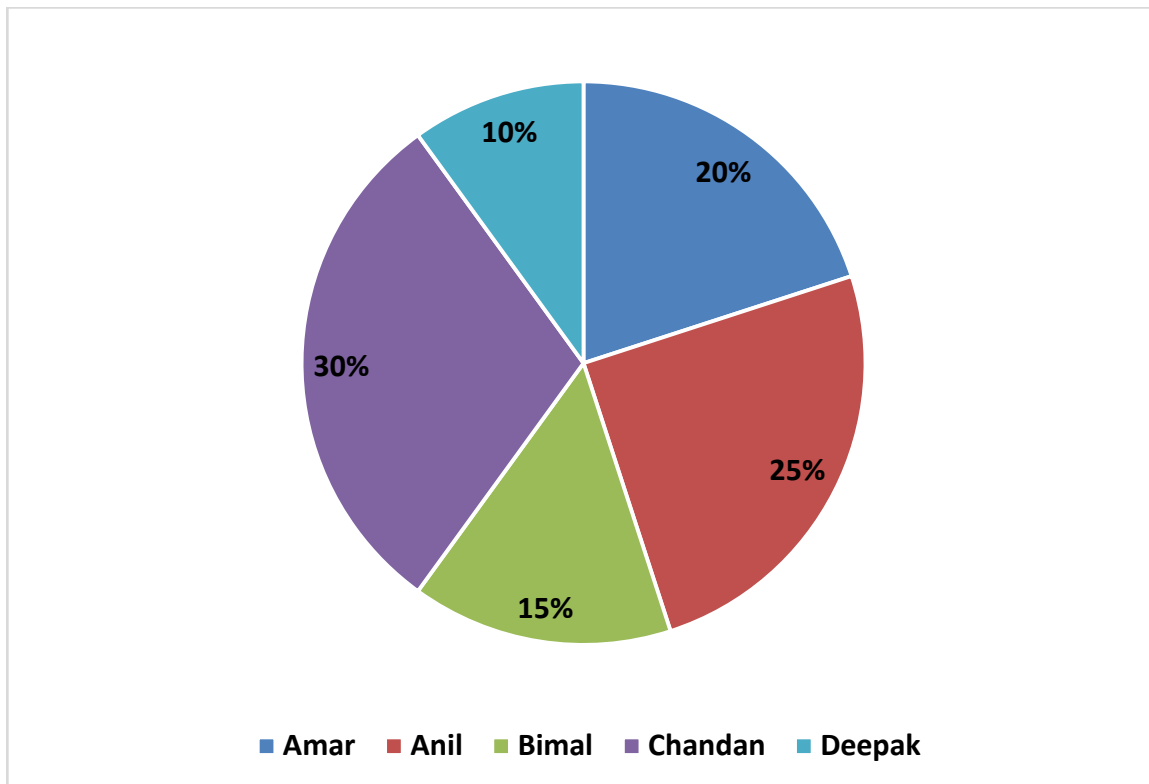
The second pie chart represents percentage wise distribution of amounts invested by five persons on compound interest.

Total amount invested by five persons on CI = Rs. 600000

121) The amount invested by Anil on simple interest at 8% per annum for four years. Then the amount invested by him on compound interest at 5% per annum for two years. The amount invested by Cha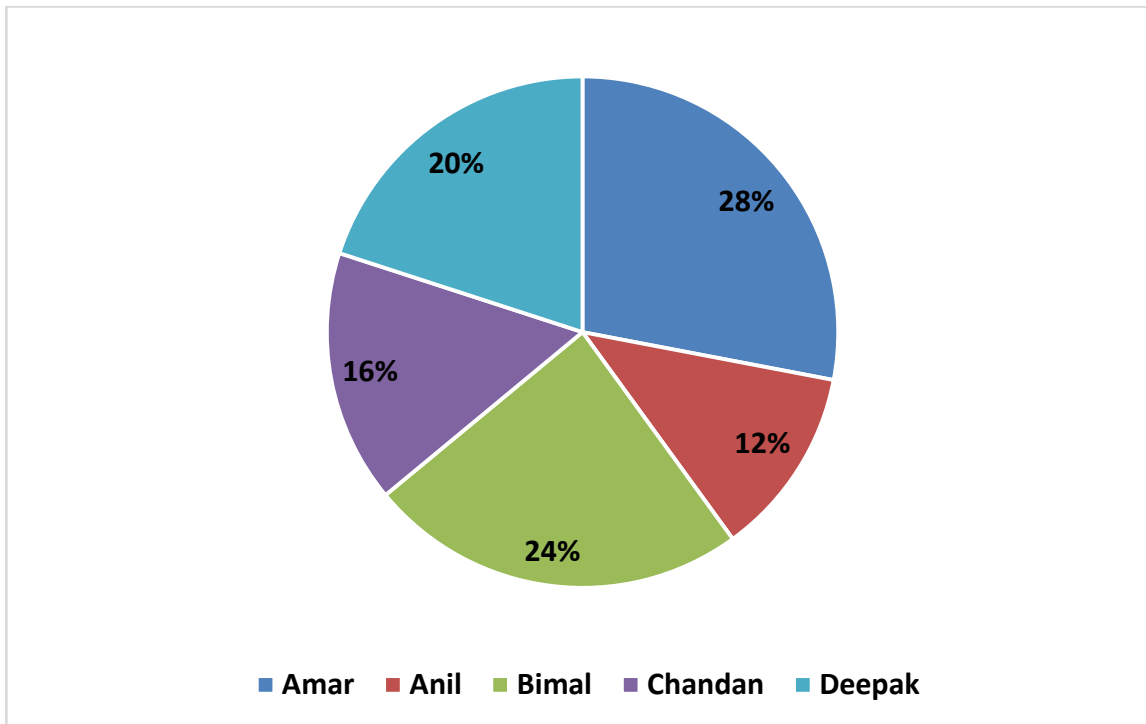ndan on simple interest at 10% per annum for eight years. Find the respective ratio of the total interest earned by Anil from the amounts invested on simple interest and compound interest together and interest earned by Chandan from the amount invested on simple interest?

a) 1581 : 1987
b) 2101 : 3903
c) 1969 : 4800
d) 1768 : 3500
e) None of these

122) Amar invested his amount on compound interest at 6% per annum for three years and Deepak invested his amount on compound interest

at 10% per annum for four years. Total amount received by Amar while investing on compound interest is approximately what percent of the total amount received by Deepak while investing on compound interest?

a) 130 %
b) 150 %
c) 115 %
d) 95 %
e) 80 %

123) The half of the amount invested by Bimal on simple interest is invested in scheme A which offers interest at 8% per annum for three years and that of the remaining half on scheme B at 6% per annum for six years. The amount invested by him on compound interest at 4% per annum for two years. Find the total interest earned by Bimal?
a) Rs.28560.4

b) Rs.29750.4
c) Rs.22050.8
d) Rs.24860.6
e) None of these

124) Find the relation between the following two quantities:

Quantity I: The amount invested by Chandan on compound interest is invested in scheme Y for 2 years and he received total amount of Rs.120422.4 at the end of two years. Find the rate of interest offered by scheme Y.

Quantity II: The one fourth of the amount invested by Amar on simple interest is invested in scheme X for five years and earned an interest of Rs.15000 at the end of five years. Find the rate of interest offered by scheme X.

a) Quantity I > Quantity II
b) Quantity I < Quantity II
c) Quantity I ≥ Quantity II
d) Quantity I ≤ Quantity II

e) Quantity I = Quantity II or no relation can be established.

125) Find the total interest earned by Keshav from the amount invested on compound interest.

Statement I: Amount invested by Keshav on compound interest is 20% more than the amount invested by Deepak on simple interest.

Statement II: Keshav invested his amount on compound interest for two years at 5% per annum.

a) Statement I alone is sufficient to answer the question, but the statement II alone is not sufficient.

b) Statement II alone is sufficient to answer the question, but the statement I alone is not sufficient.

c) Either statement I alone or statement II alone is sufficient to answer the question.

d) Both statements I and II together are needed to answer the question.

e) Both statements I and II together are not sufficient to answer the question.

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Set 26 : Probability

Directions (126 - 130): Study the following information carefully and answer the questions given below:

There are six bags, each contains balls of four different colours viz. Red, Green, Yellow and Blue.

The following line graph represents number of Red and Green balls in six bags.
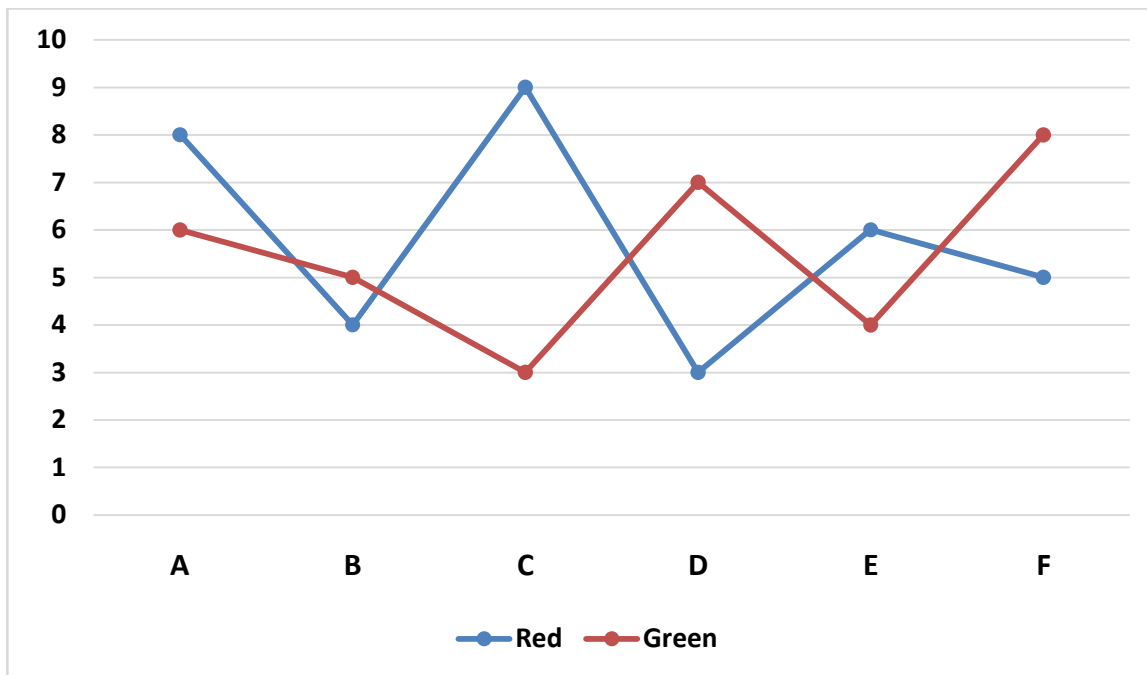
The following table represents respective ratio of number of Red balls and number of Yellow balls in six bags.

Bags	Red : Yellow
A	4:5
B	--
C	3:2
D	--
E	3:4
F	--

126) Probability of drawing one Blue ball from bag A is 1/7 and probability of drawing one Blue ball from bag C is 1/10. Probability of drawing two Red balls and two Blue balls from bag A is approximately what percent of the probability of

drawing two Green balls and two Yellow balls from bag C?

a) 93%   b) 79%   c) 103%   d) 88%   e) 65%

127) Probability of drawing one Yellow ball from bag B is 1/6 and probability of drawing one Red ball from bag B is 2/9. Probability of drawing one Blue ball from bag E is 2/11. Find the respective ratio of total number of balls in bag B and total number of balls in bag E.

a) 7 : 9   b) 8 : 13   c) 9 : 11   d) 5 : 9   e) None of these

128) Probability of drawing one Blue ball from bag D is 3/10 and probability of drawing one Yellow ball from bag D is 1/5. Find the sum of the probability of drawing four balls from bag D such that all the balls are of different colour and probability of drawing four balls from bag D such that all the balls are of same colour.

a) 31/451   b) 39/335   c) 37/323   d) 35/321

e) None of these

129) Find the relation between following two quantities:

Quantity I: Probability of drawing one Yellow ball from bag C is ¼. Find the probability of drawing 2 Red, 1 Green and 1 Blue ball from bag C.

Quantity II: Probability of drawing one Green ball from bag E is 2/11. Find the probability of drawing 1 Red, 1 Green and 2 Blue balls from bag E.

a) Quantity I > Quantity II

b) Quantity I < Quantity II

c) Quantity I ≥ Quantity II

d) Quantity I ≤ Quantity II

e) Quantity I = Quantity II or no relation can be established.

130) Find the probability of drawing 2 Green balls and 2 Blue balls from bag F?

Statement I: Probability of drawing one Red ball from bag F is ¼ and probability of drawing one Yellow ball from bag F is 3/20.

Statement II: Probability of drawing one Green ball from bag F is 2/5 and probability of drawing one Blue ball from bag F is 1/5.

a) Statement I alone is sufficient to answer the question, but the statement II alone is not sufficient.

b) Statement II alone is sufficient to answer the question, but the statement I alone is not sufficient.

c) Either statement I alone or statement II alone is sufficient to answer the question.

d) Both statements I and II together are needed to answer the question.

e) Both statements I and II together are not sufficient to answer the question.

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Set 27 : Income and Expenditure

Directions (131 - 155): Study the following information carefully and answer the questions given below:

The following bar graph represents monthly incomes of six persons in two different years:
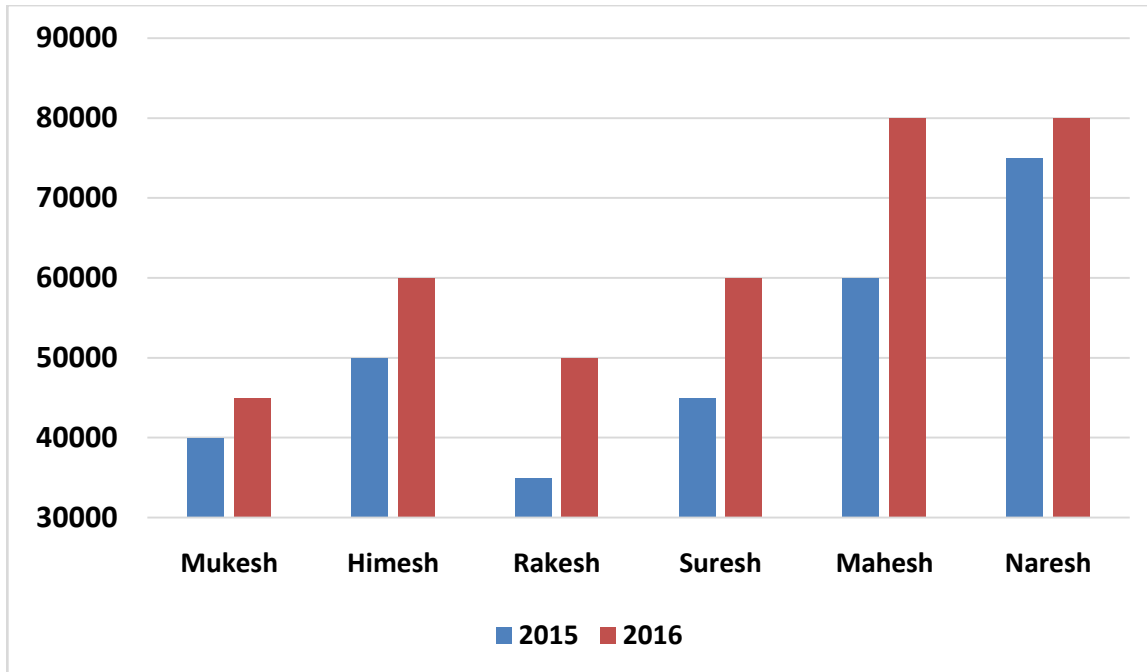
The following table represents ratio of monthly expenditures of five persons among themselves in two years.

Persons	2015	2016
Mukesh : Himesh	4:5	5:6
Himesh : Rakesh	5:3	3:2
Rakesh : Suresh	3:4	2:3
Suresh : Mahesh	2:3	3:4
Mahesh : Naresh	3:4	8:9

131) If respective ratio of monthly savings of Rakesh and Suresh in 2015 is 4:5 and respective ratio of monthly savings of Rakesh and Suresh in 2016 is 1:1, percentage increase/decrease in monthly expenditure of Rakesh from 2015 to 2016 is approximately what percent of percentage increase/decrease in monthly expenditure of Suresh from 2015 to 2016.
a) 76%   b) 67%   c) 33%   d) 83%   e) 57%

132) If respective ratio of monthly savings of Mukesh and Himesh in 2015 is 4:5 and respective ratio of monthly savings of Mukesh and Himesh in 2016 is 2:3, find the respective ratio of monthly saving of Mukesh in 2015 and monthly savings of Himesh in 2016.
a) 1:2   b) 2:3   c) 3:4   d) Cannot be determined
e) None of these

133) If respective ratio of the monthly expenditures of Himesh and Mahesh in 2015 is 2:3 and respective ratio of their monthly savings is 1:1, average of the monthly incomes of Himesh and Mahesh in 2015 is what percent of the average of the monthly expenditures of them in that year?
a) 185%   b) 215%   c) 160%   d) 220%
e) None of these

134) Find the relation between following two quantities:
Quantity I: If respective ratio of monthly savings of Mahesh and Naresh in 2016 is 8:7, find the difference between the monthly expenditures of Mahesh and Naresh in 2016.
Quantity II: If respective ratio of monthly savings of Himesh and Rakesh in 2016 is 1:1, find the difference between the monthly expenditures of Himesh and Rakesh in 2016.
a) Quantity I > Quantity II
b) Quantity I < Quantity II
c) Quantity I ≥ Quantity II
d) Quantity I ≤ Quantity II
e) Quantity I = Quantity II or no relation can be established.

135) Find the monthly savings of Mahesh in 2016.
Statement I: Respective ratio of monthly incomes of Raja and Naresh in 2016 is 17:16. Raja saves Rs.45000 per month in 2016.
Statement II: Respective ratio of monthly expenditures of Raja and Mahesh in 2016 is 4:3.
a) Statement I alone is sufficient to answer the question, but the statement II alone is not sufficient.
b) Statement II alone is sufficient to answer the question, but the statement I alone is not sufficient.
c) Either statement I alone or statement II alone is sufficient to answer the question.
d) Both statements I and II together are needed to answer the question.
e) Both statements I and II together are not sufficient to answer the question.

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Set 28 : Problem on Trains

Directions (136 - 140): Study the following information carefully and answer the questions given below:

The following line graph represents length (in m) of five trains.
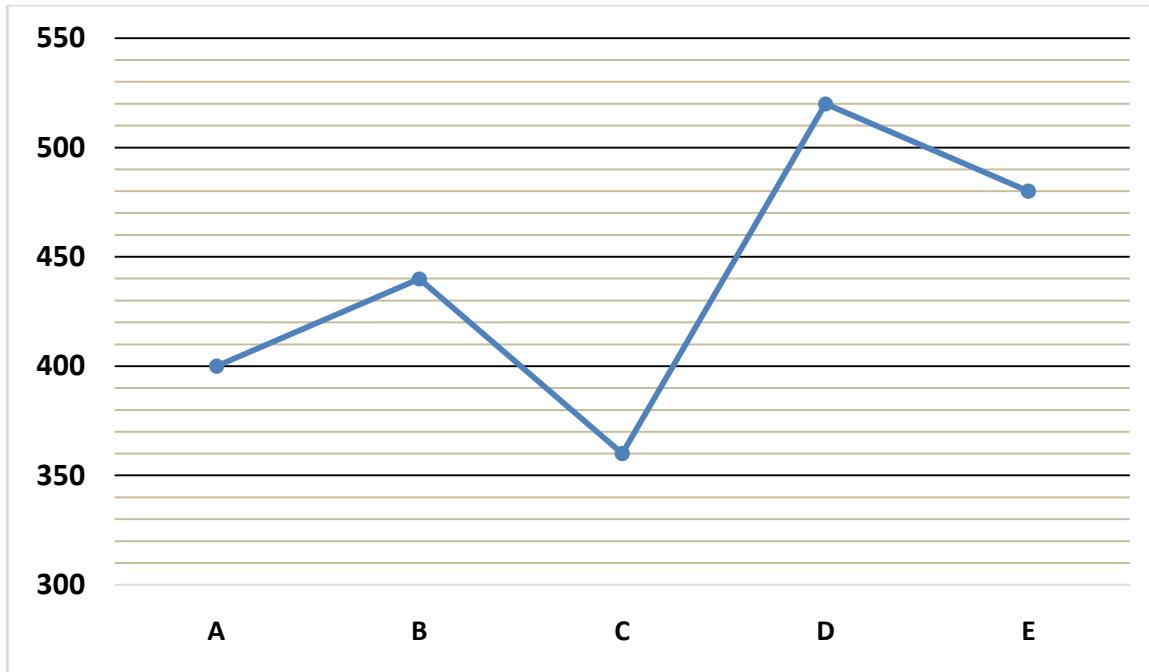
The following table represents ratio of the length of trains.

Trains	Ratio
A : P	10:9
B : Q	11:12
C : R	4:5
D : S	13:11
E : T	4:3

The following bar graph represents distance (in Km) between different stations:
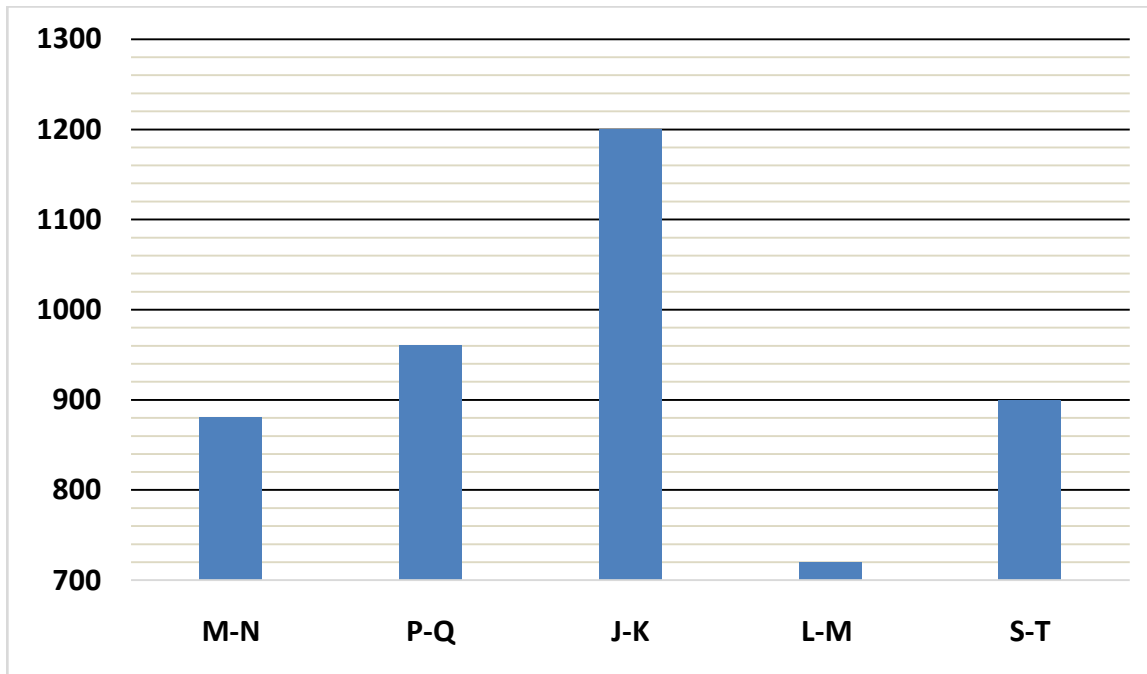
136) Train A started from station M towards station N with the speed of 48 Km/h. At the same time train B started from station N towards station M with the speed of 40 Km/h. Find the time taken by train A to reach station N after meeting with train B.
a) 11/2 hours
b) 25/3 hours
c) 58/7 hours
d) 71/9 hours
e) None of these

137) Train C can cross train S coming from the opposite direction with the speed of 40 Km/h in 36 seconds. Find the respective ratio of the time taken by train C to cross train P running in the direction of train C with the speed of 32 Km/h and time taken by train C to cross train E coming from the opposite direction with the speed of 44 Km/h.
a) 5:3

b) 7:2
c) 9:1
d) 8:5
e) None of these

138) Train D started from station J with the speed of 36 Km/h towards station K at 5:00 PM. Train Q started from station K with the speed of 15 Km/h towards station J at 10:00 PM. Find the time when train D and train Q will meet each other.
a) 6:00 PM on the next day
b) 4:00 AM on the next day
c) 8:00 PM on the next day
d) 6:00 AM on the next day
e) None of these

139) Find the relation between following two quantities:
Quantity I: Train A can cross train Q coming from the opposite direction with the speed of 30 Km/h in

72 seconds. Find the time taken by train A to cross a platform of length 650 m.

Quantity II: Train D can cross train T running in the same direction with the speed of 33 Km/h in 264 seconds. Find the time taken by train D to cross a bridge of length 380 m.

a) Quantity I > Quantity II
b) Quantity I < Quantity II
c) Quantity I ≥ Quantity II
d) Quantity I ≤ Quantity II
e) Quantity I = Quantity II or no relation can be established.

140) Find the time taken by train B to cross a man running in the same direction with the speed of 4 Km/h.

Statement I: Train B can cross train R coming from the opposite direction with the speed of 41 Km/h in 36 seconds.

Statement II: Train B can cross a platform of length 560 m in 75 seconds.

a) Statement I alone is sufficient to answer the question, but the statement II alone is not sufficient.
b) Statement II alone is sufficient to answer the question, but the statement I alone is not sufficient.
c) Either statement I alone or statement II alone is sufficient to answer the question.
d) Both statements I and II together are needed to answer the question.
e) Both statements I and II together are not sufficient to answer the question.

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Set 29 : Problem on Ages

Directions (141 - 145): Study the following information carefully and answer the questions given below:

The following line graph represents present ages (in years) of five boys:
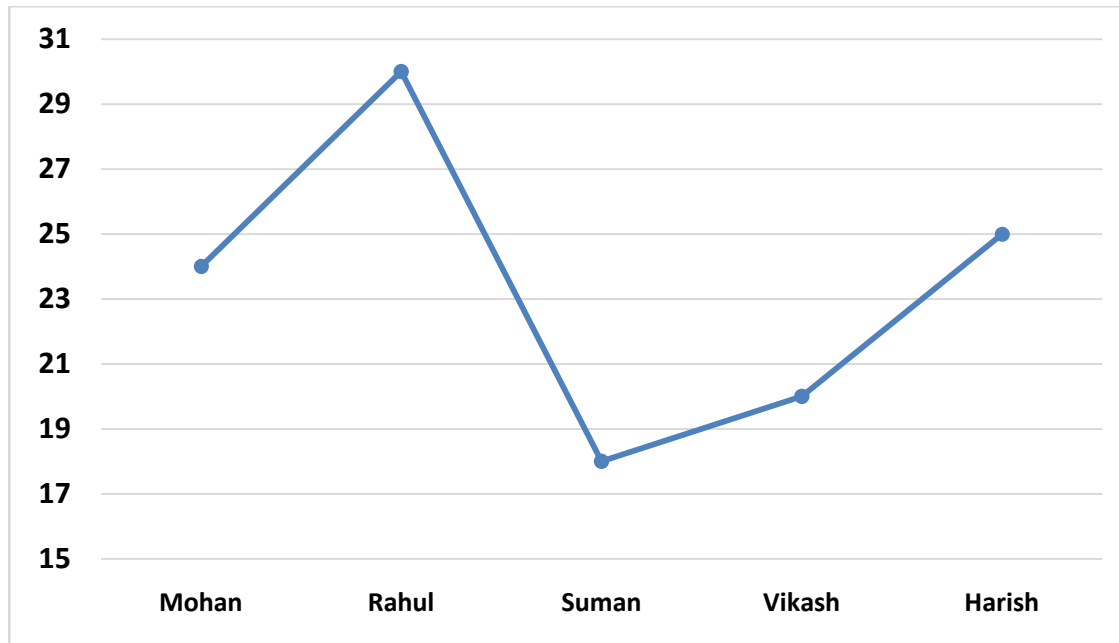
The following table represents ratio of the present ages of five boys and five girls.

Mohan : Parul	6:5
Rahul : Tina	5:4
Suman : Sarita	9:11
Vikash : Vinita	4:5
Harish : Neha	5:6

141) Average of the ages of Rahul, Sarita, Nimo and Ragini after two years will be 28.5 years. Ragini is two years older than Nimo. Average age of Nimo and Nidhi before four years was 21 years. Present age of Nidhi is what percent of the present age of Harish?
a) 96%   b) 88%   c) 92%   d) 76%   e) None of these

142) Respective ratio of the ages of Mohan and Nitin after six years will be 15: 17 and respective ratio of the ages of Vinita and Sumi before five years was 4: 3. Sum of the present ages of Mohan and Sumi is approximately what percent of the sum of the present ages of Nitin and Vinita?

a) 71%   b) 83%   c) 79%   d) 69%   e) 87%

143) Respective ratio of the ages of Parul and Nisha after four years will be 12: 11. Average of the present ages of Nisha, Tina and Vinay is 21 years. If Vinay is three years older than Shashank, find the average of the present ages of Parul and Shashank.
a) 19 years   b) 17 years   c) 21 years   d) 23 years
e) None of these

144) Find the relation between following two quantities:
Quantity I: Average of the present ages of Suman, Neha and Merlin is 24 years. Find the difference between the present ages of Rahul and Merlin.
Quantity II: Average of the present ages of Vikash, Sarita and Kavita is 22 years. Find the difference between the present ages of Mohan and Kavita.
a) Quantity I > Quantity II
b) Quantity I < Quantity II
c) Quantity I ≥ Quantity II
d) Quantity I ≤ Quantity II
e) Quantity I = Quantity II or no relation can be established.

145) Find the age of Seema after four years.
Statement I: Average of the present ages of Vinita, Tina and Deepa is 24 years. Deepa is two years younger than Meeta.
Statement II: Average of the ages of Meeta and Seema before two years was 22 years.
a) Statement I alone is sufficient to answer the question, but the statement II alone is not sufficient.
b) Statement II alone is sufficient to answer the question, but the statement I alone is not sufficient.
c) Either statement I alone or statement II alone is sufficient to answer the question.
d) Both statements I and II together are needed to answer the question.
e) Both statements I and II together are not sufficient to answer the question.

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Set 30 : Venn diagram based Caselet

Directions (146 - 150): Read the following information carefully and answer the given questions.

A survey was conducted in a school to find out what the students likes in their canteen for snacks. Each student likes only one of the following snacks. Once the survey complete, the surveyor built the Venn diagram.
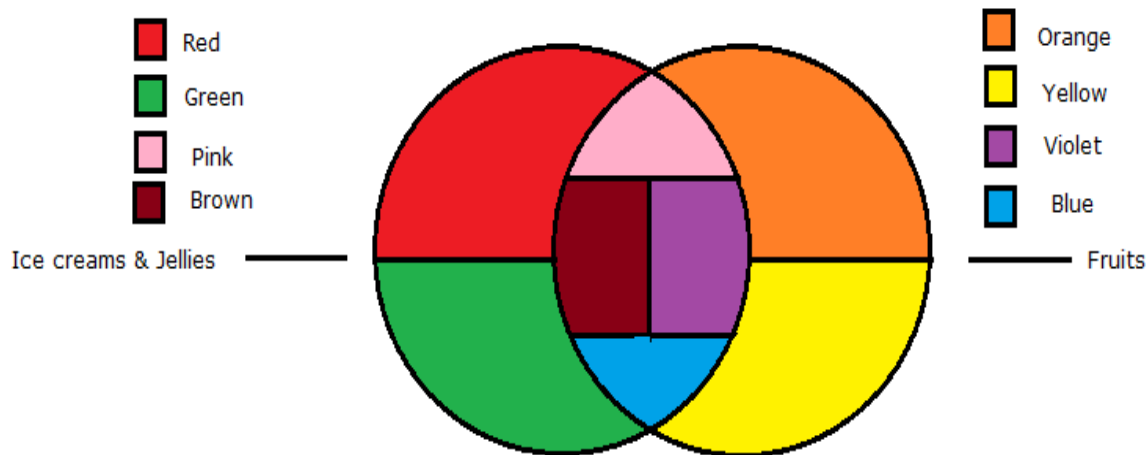
The students like one out of exactly two types of fruits – apples (represented by the orange colour region in the fruits circle) and strawberries (represented by the yellow colour region in the fruits circle). They like one out of the ice creams and jellies – ice creams (represented by the red colour region in the circle) and jellies (represented by the green colour region in the circle). Some likes apple flavoured ice creams (represented by the pink colour region in the circle). Some likes strawberry flavoured ice creams (represented by violet colour region in the circle). Some likes apple flavoured jellies (represented by the brown colour region in the circle). Some likes strawberry flavoured jellies (represented by blue colour region in the circle). The following information also known,

1). 320 students likes only fruits and 240 students likes only ice cream (no flavoured).

2). 250 students like apples (either as fruit or flavoured ice cream or flavoured jellies).

3). 180 students like only jellies (no flavoured) and students like apple flavoured ice creams is 30 more than the apple flavoured jellies.

4). Students like strawberry flavoured jellies is half of the students like apple flavoured ice cream.

5). Students like strawberry flavoured ice cream is thrice the students like strawberry flavoured jellies.

6). Total students in the school is 1030.

146) Find the number of students like only strawberry?

a) 100   b) 120   c) 200   d) 300   e) None

147) What is the ratio of the number of students like strawberry (either as fruits or flavoured ice

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cream or flavoured jellies) to the number of students like apple flavoured ice creams?
a) 4: 5   b) 9: 2   c) 3: 5   d) 7: 5   e) 2: 3

148) Number of students like Jellies is what percentage of the number of students like strawberry?
a) 60%
b) 50%
c) 80%
d) 75%
e) 90%

149) If the ratio of boys to girls like strawberry flavoured ice cream is 7: 5, then find the number of girls like strawberry flavoured ice cream

a) 40
b) 45
c) 80
d) 60
e) None of these

150) What is the difference between the number of students like flavoured ice cream and the flavoured jellies?
a) 110
b) 120
c) 130
d) 90
e) 80

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Set 31 : Venn diagram based Caselet

Directions (151 - 155): Study the following information carefully and answer the questions given below:

There are total 900 students in a GK class. Each likes one or more among the three news channels viz. Sky News, NDTV India and CNN. 40% of the total number of students like Sky News. 18% of the total number of students like only CNN. 5% of the total number of students like all the three news channels. Respective ratio of number of students who like only CNN and total number of students who like CNN is 9:29. 15% of the total number of students like Sky News and CNN both but not NDTV India. 42% of the total number of students like NDTV India but not Sky News. 30% of the total number of students like NDTV India but not CNN.

151) Number of students who like Sky News and NDTV India both but not CNN is what percent of the number of students who like NDTV India and CNN both but not Sky News?
a) 30%   b) 40%   c) 35%   d) 25%   e) None of these

152) Out of the total number of students who like only Sky News, respective ratio of boys and girls is 5:4 and out of the total number of students who like only NDTV India, respective ratio of boys and girls is 6:5. Number of boys who like only Sky News is approximately what percent of the number of boys who like only NDTV India?
a) 52%   b) 48%   c) 62%   d) 56%   e) 39%

153) Find the respective ratio of total number of students who like Sky News but not CNN and total number of students who like CNN but not Sky News.
a) 11: 17   b) 13: 21   c) 15: 23   d) 10: 19
e) None of these

154) Find the difference between total number of students who like only one news channel and total number of students who like only two news channels.
a) 105   b) 61   c) 81   d) 97   e) None of these

155) Find the average of the total number of students who like NDTV India and CNN both but not Sky News and total number of students who like Sky News and NDTV India both but not CNN.
a) 144   b) 78   c) 126   d) 88   e) None of these

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Set 32 : Mixed Caselet

Direction (156 – 160): Read the following information carefully and answer the given questions:

Total distance between A to B is 240km. Train P starts running with an average speed of **(S)** kmph from A to B while another train Q starts running after 2 hours of train A and reaches B 60 minutes before train P. If train A stops for 60 minutes at a line crossing and second train did not stop at any place, then the ratio between the speed of train P to speed of train Q is 4:5.

Prem distributed Rs.14000 between his two daughters Anu and Bharathi and both of them invested at the rate of (S-6)% SI per annum. The age of Bharathi and Anu at that time was 18 years and (S) years respectively and such that each daughter may get equal amounts, when they attain the age of 21 years. Initial amount the Anu has is **(T).**

The price of article increased by (S)% every year. If the difference between the price at the end of the third year and fourth years is **(U)** and the price at the end of second year is Rs.23200.

Prem sells his car, if profit on selling a car for (T) is thrice the loss on selling it for Rs.4500. The Cost price of Prem car is **(V).**

156) Find the value in the place of (S)
a) 15 kmph   b) 26 kmph   c) 16 kmph   d) 18 kmph
e) None of these

157) Find the value in the place of (V)
a) Rs.8000   b) Rs.6000   c) Rs.4000   d) Rs.5000
e) None of these

158) Quantity I: U
Quantity II: T
a) Quantity I > Quantity II
b) Quantity I ≥ Quantity II

c) Quantity II > Quantity I
d) Quantity II ≥ Quantity I
e) Quantity I = Quantity II or Relation cannot be established

159) Find the difference between V and T?
a) Rs.1500   b) Rs.2500   c) Rs.500   d) Rs.1600
e) None of these

160) Find the value in the place of (U)
a) 4305.92 b) 4206.92 c) 4108.92 d) 4006.92
e) None of these

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Set 33 : Caselet

Directions (161 - 165): Read the following information carefully and answer the given questions.

Certain number of people works in Swiggy, Zomato, and Hellofood. There are only three types of online food delivery companies and each people works in one or more companies. 72% of the people working in Swiggy Company and people working in only Hellofood Company was 1/36th of people working in Swiggy Company. Number of people working in both Hellofood Company and Zomato but not in Swiggy Company are 55. People working in only Zomato Company are 65 more than the people working in only Hellofood Company. People working in only Swiggy Company is 160/3% more than number of the people working in only Zomato Company.

161) What is number of people who work in Swiggy Company, but not only in Swiggy Company?
a) 225   b) 245   c) 115   d) 105   e) 75

162) What is number of people working in all Companies?
a) 360   b) 300   c) 250   d) 550   e) 500

163) Number of people working only in Zomato Company
a) 65   b) 55   c) 75   d) 85   e) None of these

164) If number of people working in Swiggy and Zomato are 105 then what percentage of people are there who work in Swiggy and Hellofood Company but not in Zomato Company?
a) 25%   b) 15%   c) 30%   d) 50%   e) 75%

165) Number of people working in Swiggy or Zomato Company is what percent of people working in only Zomato or only in Swiggy Company?
a) 205*15/17
b) 246*17/19
c) 229*9/13
d) 257*17/19
e) 217*17/19

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Set 34 : Partnership based Caselet

Directions (166 - 170): Read the following information carefully and answer the given questions.

Abhi, Bhavan and Charlie started a business and invested Rs. 40000, Rs. 60000 and Rs. 70000 respectively. At the end of first quarter, they invested additional amount in the ratio of 1: 2: 1. At the end of second quarter, they invested additional amount in the ratio of 4: 1: 10. At the end of third quarter, they invested additional amount in the ratio of 3: 2: 3.

166) If Abhi and Bhavan's profit ratio at the end of second quarter is 9: 14, then find the additional amount invested by Charlie at the end of first quarter?
a) Rs.15000
b) Rs.12000
c) Rs.10000
d) Rs.16000
e) Rs.18000

167) If the ratio of additional amount invested by Abhi at the end of first quarter, second quarter and third quarter is 5: 2: 3, then find the ratio of the additional amount invested by Charlie?

a) 5: 3: 5
b) 3: 5: 5
c) 4: 3: 5
d) 5: 5: 3
e) Cannot be determined

168) Find the profit ratio of Abhi, Bhavan and Charlie at the end of third quarter?
Statement I: If the additional amount invested by Charlie at the end of first quarter and second quarter equally.
Statement II: If the additional amount invested by Bhavan at the end of first quarter is Rs. 1000 more than the second quarter.

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a) Both are sufficient
b) Both are not sufficient
c) Either I or II
d) Only II
e) Only I

169) The profit ratio of Abhi to Bhavan at the end of second quarter is 72: 115 and Abhi invested additional amount at the end of second quarter is 40% of the additional amount invested by Abhi at the end of first quarter. Find the additional amount invested by Bhavan at the end of second quarter.
a) Rs.4875
b) Rs.7564

c) Rs.4985
d) Rs.4375
e) None of these

170) The ratio of additional amount invested by Charlie at the end of first, second and third quarter is 5: 5: 3. Find the profit received by Abhi if the total profit is Rs.4530000 at the end of one year.
a) Rs. 1870000
b) Rs. 2894000
c) Rs. 1120000
d) Cannot be determined
e) None of these

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Set 35 : Caselet based On permutation & Combination

Directions (171 - 175): Read the following information carefully and answer the given questions.

There are total 1800 students in a class. Each students like one or more subjects among three subjects viz. Maths, Physics and Chemistry.

Boys: 56% of the total boys like Maths. 49% of the total boys like Physics. 46% of the total boys like Chemistry. 10% of the boys like Physics and Chemistry both but not Maths.

Girls: 54% of the total girls like Physics. Percentage of the total boys like Maths is same as the percentage of the girls like Chemistry. 10% of the total girls like all the three subjects.

171) If 5% of the total boys like all the three subjects and the number of boys like all the three subjects is same as the number of girls like all the three subjects.
Quantity I: A group of four students is to be formed from 12.5% of the total boys like Maths. Find the number of ways in which this can be possible.
Quantity II: A group of four students is to be formed from 25% of the total girls like Chemistry. Find the number of ways in which this can be possible.
a) Quantity I > Quantity II
b) Quantity I < Quantity II
c) Quantity I ≥ Quantity II
d) Quantity I ≤ Quantity II
e) Quantity I = Quantity II (or) Relationship cannot be established

172) A group of two students is to be formed from the total girls who like at most two subjects. Find the number of ways in which this can be possible.
Statement I: The number of boys like Physics is 264 more than the number of girls like Physics.
Statement II: Number of boys and girls like all the three subjects is same.
a) Only I
b) Only II

c) Either I or II
d) Neither I nor II
e) Both I and II

173) A group of four students is to be formed from the total boys such that the group contains 2 students who like Maths and Chemistry but not Physics and 2 students who like Maths and Physics but not Chemistry. Find the number of ways in which this can be possible if 5% of boys like all the three subjects which is 60 and 16% of the boys like only Chemistry.
a) 99*180*95*189
b) 84*179*191*90
c) 90*179 *96*191
d) Cannot be determined
e) None of these

174) Find the difference between the total number of boys like only two subjects and the total number of girls like only two subjects.
Statement I: The number of boys like Chemistry is 216 more than the number of girls like Chemistry.
Statement II: Number of boys and number of girls all the three subjects is same.
a) Only I

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b) Only II
c) Either I or II
d) Both I and II
e) Neither I nor II

175) Number of girls like all the three subjects is 60, find the ratio of the total number of girls like more than one subject to the total number of boys like only one subject

Statement I: Total number of girls like only one subject is 336.

Statement II: 5% of boys like all the three subjects and 16% of the boys like only Chemistry.
a) Only I
b) Only II
c) Both I and II
d) Either I or II
e) Neither I nor II

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Set 36 : Caselet
Directions (176- 180): Study the following information carefully and answer the questions given below:

There are total 2500 employees in an organization. Respective ratio of males and females among them is 3:2. Each employee likes one or more among the three newspapers viz. Time of India, India Times and Hindustan Times. 15% of the total number of employees like only two newspapers. 10% of the total number of employees like all the three newspapers. 30% of the total number of employees like Times of India but not Hindustan Times. Number of employees who like Times of India and Hindustan Times both, number of employees who like Times of India and India Times both and number of employees who like Hindustan Times and India times both is same. Total number of employees who like India Times is 35% of the total number of employees. Number of employees who like only Hindustan Times and total number of employees who like India Times is same.

176) Number of employees who like Hindustan Times but not India Times is what percent of the number of employees who like India Times but not Times of India?
a) 250%   b) 200%   c) 100%   d) 150%
e) None of these

177) Find the respective ratio of number of employees who like only Times of India and number of employees who like only Hindustan Times.
a) 7:9   b) 9:11   c) 5:7   d) 11:13   e) None of these

178) Out of the number of employees who like Hindustan Times but not Times of India, respective ratio of males and females is 13:12. Number of female employees who like Hindustan Times but not Times of India is what percent of total number of female employees?
a) 56%   b) 48%   c) 44%   d) 52%   e) None of these

179) Out of the number of employees who like only one newspaper, respective ratio of males and females is 8:7 and out of the number of employees who like more than one newspaper, respective ratio of males and females is 3:2. Find the sum of the total number of female employees who like only one newspaper and total number of female employees who like more than one newspaper.
a) 925   b) 1125   c) 825   d) 1025   e) None of these

180) Out of the total number of employees who like India times, 40% are permanent employees and rest are temporary and out of the number of employees who like only Times of India, 60% are permanent employees and rest are temporary. Find the difference between total number of temporary employees who like India Times and number of temporary employees who like only Times of India.
a) 200   b) 175   c) 250   d) 275   e) None of these

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Set 37 : Mixed Caselet

Direction (181 - 185): Read the following information carefully and answer the given questions:

Two years ago Kavin is 5 times as old as his son Ramesh. After 10 years, he will be 48 years older than his son and the present age of Kavin and Ramesh is (L) years.

The marked price of a Laptop in two different shops viz. shop - 1 and shop - 2 is same. In shop - 1 laptop is (L/2-8)% discount and shop - 2 available at two successive discounts of 10% and (K)%. A man bought laptop in shop - 1 at Rs.14000. If man would have paid Rs.5000 less, he could have bought the same laptop in shop - 2.

Vivek, Ram and Anthuvan enter into partnership. They invest Rs.1600, Rs.3200 and Rs.4800 respectively. At the end of 4 months Ram withdrew (K) % of his initial investment while at the end of 6 months from the start of the business, Anthuvan withdrew 3200. At the end of one year total profit is Rs.13000 and the difference between the share of Vivek and Ram is (M).

The difference between simple interest and compound interest on Rs.(M) for a period of two years is Rs.(N) at 10%. Two Pipes A and B are such that A fills a tank in (N) hours and B empties it in 20 hours. If pipe A is opened first and after 5 hours B is also opened, then the tank emptied in (O) hours.

181) Find in the place of (K)
a) 50%   b) 20%   c) 30%   d) 60% e) None of these

182)
Quantity I: M * O =?
Quantity II: L * K =?
a) Quantity I > Quantity II
b) Quantity I ≥ Quantity II
c) Quantity II > Quantity I
d) Quantity II ≥ Quantity I
e) Quantity I = Quantity II or Relation cannot be established

183) Find the in the place of (N)

a) Rs.10   b) Rs.18   c) Rs.12   d) Rs.16
e) None of these

184) The sum of K and L together is what percent of M?
a) 17.5%   b) 24.5%   c) 36.67%   d) 12.6%
e) 8.5%

185) What is the average of K, L, M, N and O?
a) 229.2
b) 233.6
c) 246.6
d) 254.6
e) None of these

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Set 38 : Caselet based Time and Work

Directions (186- 190): Read the following information carefully and answer the questions given below:

There are four boys namely Ajay, Vinay, Murari and Kiran and four girls namely Anima, Nishi, Ishita and Nimi in a group and each can complete a piece of work in different number of days. Nishi can complete the piece of work in 12 days. Number of days taken by Murari to complete the work is 25% more than the number of days taken by Nishi to complete the work. Ratio of number of days taken by Murari and Ajay to complete the work is 3:4 respectively. Number of days taken by Ajay to complete the work is 100% more than the number of days taken by Anima to complete the work. Efficiency of Anima is 50% more than the efficiency of Nimi. Respective ratio of the number of days taken by Ajay, Vinay and Ishita is 5:4:2 respectively. Number of days taken by Kiran to complete the work is 50% more than the number of days taken by Ishita to complete the work.

186) Anima and Ishita started the work and left after 2 days. Find the number of days taken by Murari to complete the remaining work.
a) 9 days
b) 33/4 days
c) 8 days
d) 35/4 days
e) None of these

187) If Nimi and Ajay work on alternate days starting with Nimi, find the number of days taken by them to complete the work.
a) 15 days
b) 16 days
c) 10 days
d) 17 days
e) None of these

188) Find the respective ratio of the efficiency of Nishi and efficiency of Vinay.
a) 5:4
b) 4:3
c) 3:2
d) 3:1
e) None of these

189) If Kiran works with half of his efficiency and Murari works with double his efficiency, find the number of days taken by them to complete the work.
a) 130/11 days
b) 140/11 days
c) 120/21 days
d) 110/9 days
e) None of these

190) If all the girls work together, find the number of days taken by them to complete the work.
a) 8/3 days
b) 4 days
c) 7/2 days
d) 2 days
e) None of these

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Set 39 : Problem on Trains

Directions (191 - 195): Study the following graph carefully and answer the given questions

Vehicle	Distance covered on day 1 (km)	Distance covered on day 2 (km)	Speed on day 1 (km/hr)	Speed on day 2 (km/hr)	Halt time due to traffic on day 1 (min)	Halt time due to traffic on day 2 (min)
A	_	190	60	_	1	_
B	110	_	_	30	_	0
C	_	200	_	_	_	_
D	150	110	50	_	_	_
E	_	160	_	90	_	1

191) A person travelled to reach Pune from Mumbai using vehicle C. He travelled his journey partly on day 1 and rest on day 2. Total distance between stations is 380 km. On day 1 he travelled at a speed of 10 kmph more than the average speed of entire journey and on day 2 he travelled at a speed of 10 kmph less than the average speed of entire journey. While returning back he decided to reverse the speed on each part of journey find the value of average speed of entire journey if the time taken on return journey is 12 min less than the time taken to reach Pune. (Approximately)
a) 30   b) 55   c) 46   d) 60   e) 54

192) Distance between P and Q is 450 km and two people travelled on day 1. One by vehicle B and other by vehicle C from P to Q. speed of vehicle C is 20 km/h more than that of vehicle B. After travelling 2/3rd distance vehicle A stops for 2 hours and after that remaining distance is covered at 2/3rd of initial speed and reaches at Q. vehicle B

after travelling 1/3rd of distance stops for 1 hour and after that increases its speed by 25% and reaches at Q at the same time as the vehicle C. Find the speed of vehicle A.
a) 30
b) 40
c) 60
d) 50
e) Both b) and c)

193) A man driving vehicle E on day 2. After every 24 minutes he reduces his speed by 5 km/h. Find out the time taken to cover this distance.
a) 4 hrs
b) 2 hrs
c) 3 hrs
d) 1.5 hrs
e) None of these

194) A man starts to travel with A on day 1 in order to reach his in - laws place and reaches 1

hours late. If he travels by vehicle E on day 1 then he reaches 2 hour early. What is the distance between his home and his in-laws place? Also find out the actual time taken to travel the distance. Considering no halt in between and distance covered is same.

a) 11 hrs, 600 km
b) 11 hrs, 720 km
c) 15 hrs, 600 km
d) 12 hrs, 800 km

e) None of these

195) Find the halt time taken by vehicle D on day2. The ratio of halt time on day 1 and day 2 is 5:1. If total time for journey is 5hr 12 min also the time taken on day 2 is 2/3 of day 1

a) 5 min
b) 6 min
c) 7 min
d) 2 min
e) None of these

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Set 40: Mixed Caselet

Directions (196 - 200): Read the following passage carefully and answer the given questions.

Rahul goes to gym and runs 40 minutes on treadmill. For starting 15 minutes he runs at a uniform speed of 5 km/hr and after that he runs at a uniform speed of 9 km/hr for remaining time. He runs total (A) km on treadmill. After that he comes to his house and get ready for office which is 45 km away from his house. He reaches office in 1.5 hours at 9.30 am.

In office he gives some work to his subordinates P1 and P2 at (B). P1 can complete that work in 6 hours while efficiency of P1 and P2 is in the ratio 5: 4. P1 and P2 together complete 75% of that work 12.30 pm. Rahul and P2 together can complete same work in 3 hours. Rahul is (C)% more efficient than P1. After that work he comes back to home in upstream (Speed of stream is 3 km/hr and his speed in still water and distance between his house and office are same as earlier. He takes (D) hours to reach home.

When he reaches home, two of his friends Aman and Raman come at his house. All three starts to play a game in which 2 dices are used by each person. (E) is the number of outcomes in which first Rahul and then Aman throw their respective dices. In a game, all three throw their dices and each one of them get 8 as the sum of numbers in

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78

their dices and any one of two not get same outcomes. Winner is the one who gets highest number as the sum of the square of the number comes in dices. (F) should be the outcomes of the dices of Raman is winner of the game.

196) What value will come at the place of 'A'?
a) 3.75 km b) 4.5 km c) 5 km d) 2.5 km e) 3.5 km

197) What value will come at the place of 'B'?
a) 10.30 am
b) 11.00 am
c) 09.30 am
d) 10.00 am
e) None of these

198) What value will come at the place of 'C'?
a) 20% b) 25% c) 30% d) 24% e) 36%

199) What value will come at the place of 'D'?

a) 2(1/3) hours
b) 3(1/2) hours
c) 1(2/3) hours
d) 1(1/3) hours
e) 3(1/3) hours

200) What value will come at the place of 'E'?
a) 36
b) 72
c) 108
d) 216
e) None of these

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Set 41: Caselet based on SI and CI

Directions (201 –205): Study the following information carefully and answer the questions give below:

Five persons Ajay, Vijay, Mohan, Rakesh and Suresh invested different amounts on SI and CI.

Ajay invested Rs.44000 on SI at 6% per annum for 5 years. Amount invested by Mohan on SI is 20% more than the amount invested by Ajay on SI. He invested his amount at 8% per annum for 3 years. Ratio of the amount invested by Suresh on SI to the amount invested by Mohan on SI is 5:6 respectively. Suresh invested his amount for 6 years at 5% per annum. Amount invested by Vijay on SI is 10% less than the amount invested by Mohan on SI. Vijay invested his amount at 4% per annum for 10 years. Amount invested by Rakesh on SI is Rs.200 more than the amount invested by Mohan on SI. Rakesh invested his amount for 8 years at 5% per annum.

Ratio of the amount invested by Suresh on CI to the amount invested by him on SI is 12:11 respectively. He invested his amount at 5% per annum for 2 years. Amount invested by Ajay on CI is 10% less than the amount invested by him on SI. He invested his amount at 10% per annum for 3 years. Amount invested by Mohan on CI is Rs.8000 less than the amount invested by Suresh on CI. Mohan invested his amount at 6% per annum for 2 years. Amount invested by Vijay on CI is half of the sum of the amount invested by Mohan and Suresh on CI. Vijay invested his amount at 4% per annum for 3 years. Rakesh invested Rs.9600 less than the amount invested by Ajay on CI. Rakesh invested his amount at 8% per annum for 2 years.

201) Find the sum of the simple interest and compound interest earned by Ajay.
a) Rs.22405.2   b) Rs.23450.5   c) Rs.26307.6
d) Rs.24305.4   e) None of these

202) Find the difference between the amount of Vijay on compound interest and simple interest.
a) Rs.15234.624   b) Rs.17033.984
c) Rs.16246.342   d) Rs.18112.122
e) None of these

203) Interest earned by Mohan on simple interest is approximately what percent of interest earned by him on compound interest?
a) 256%   b) 214%   c) 124%   d) 312%   e) 308%

204) Amount of Rakesh on simple interest is approximately what percent more than the amount of Rakesh on compound interest?
a) 128%
b) 104%
c) 98%
d) 84%
e) 112%

205) Had Suresh invested Rs.10000 more on simple interest and Rs.20000 more on compound interest, what would have his total amount?
a) Rs.182400
b) Rs.163840
c) Rs.125460
d) Rs.145170
e) None of these

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Set 42: Mensuration

Directions (206 - 210): Read the following information carefully and answer the given questions

In a bakery, the different types of cake are made by joining some pieces of cakes of different shapes.

The cuboid shaped cake has the height of 14 cm and the length is 28 cm.

The height of the cylinder shaped cake is 8 cm.

The diameter of the sphere shaped cake is 21 cm which is 3/2 of the diameter of the cone shaped cake.

206) If the sphere shaped cake is cut into two hemispheres and these hemisphere cakes are joined on both ends of the cylinder shaped cake and diameter of the cylinder shaped cake is 21 cm, then find the ratio of volumes of the new formed cake and sphere shaped cake.
a) 23: 7   b) 11: 7   c) 59: 32   d) 74: 51   e) 11: 14

207) A cake is made by joining a cone shaped cake on the base of a hemisphere shaped cake. If the volume of the new cake is 7084 cm³ and the diameter of the hemisphere is 28 cm, then find the height of the cone shaped cake?

a) 22 cm b) 21 cm c) 26 cm   d) 13 cm   e) 14 cm

208) Volume of the cuboid shaped cake is what percent more or less than the volume of cone shaped cake if the breadth of the cuboid cake is 22 cm and height of the cone shaped cake is 21 cm?
a) 300% less
b) 200% less
c) 500% more
d) 700% more
e) None of these

209) A new cake is made using cylinder shaped cake. Find the radius of the new cake if the height of the newly formed cake is twice the height of the cylinder shaped cake and curved surface area of the cylinder shaped newly formed cake is 44 times the height of the cylinder shaped cake.

a) 3 cm   b) 5 cm   c) 11/2 cm   d) 4 cm   e) 7/2 cm

210) Find the total surface area of the new cone shaped cake if the radius of the new cone shaped cake is increased by 200 % and height of the +cake is 28 cm?

a) 3340 cm^2
b) 5310 cm^2
c) 2420 cm^2
d) 3696 cm^2
e) 1230 cm^2

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Set 43: Permutation and Combination

Directions (211 - 215): Study the following graph carefully and answer the given questions.

The table shows the number of students participated in different sections from different schools.

School Name	Total	Section I	Section II	Section III
A	_	_	_	15
B	20	6	_	_
C	_	8	12	_
D	24	_	_	8
E	_	12	18	_

211) A group of four students has to form from school C such that the group contains one student in each section and the remaining from any of the section. The number of ways in which this can be possible is 25920. Find the number of students in section III from school C?
a) 15
b) 12
c) 10
d) 20
e) 18

212) A group of two students has to form from school E such that the group contains at least one student in section III. The number of ways in which this can be possible is 195. A committee of five students is to be formed from school E such that the committee contains 2 students from section I, 1 student from section II and 2 students from section III. Find the number of ways in which this can be possible?
a) 15920
b) 16478
c) 23420
d) 17820
e) None of these

213) Find the total number of students in school A?
Statement I: All the students in section II from school A is handshaking with each other and the total number of handshakes is 105.
Statement II: All the students in school A is handshaking with each other and the total number of handshakes is 780.

a) Only I
b) Only II
c) Both I and II
d) Either I or II
e) Neither I nor II

214) In school B, number of students in section III is 75% of the number of students in section II.
Quantity I: In committee P, five students is to be formed from school B such that the committee contains 1 student from each section and the remaining students from any of the section.
Quantity II: In committee Q, five students is to be formed from school B such that committee contains at least one student from section I.
a) Quantity I > Quantity II
b) Quantity I < Quantity II
c) Quantity I ≥ Quantity II
d) Quantity I ≤ Quantity II
e) Quantity I = Quantity II (or) Relationship cannot be determined

215) A committee of three members is to be formed from each school B and school D. Number of possible ways of a committee contains three students in section III from school D is what percentage of the number of possible ways of committee contains three students in section I from school B?
a) 180%
b) 380%
c) 160%
d) 280%
e) None of these

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Set 44: Time and work

Directions (216 – 220): Study the following information carefully and answer the given questions.

A, B, C and D are four different types of projects. The table below shows the number of days taken by five different persons to complete a project alone.

Name	Project A	Project B	Project C	Project D
Sahil	5	20	15	30
Jatin	10	18	9	42
Gagan	20	15	8	25
Disha	40	12	8	9
Karan	40	10	5	10

216) Quantity I: Sahil started to work on Project A for a day and left the work, and then Jatin works on the same project for one day and left. In this manner everyone (In the same order as given in the table) works on project for one day and leaves. This process continues until work is completed. Then find the time taken to complete project A.

Quantity II: Gagan alone completed 20% of project - C and again 20% job was done by Gagan and Disha together. Remaining work was done by Sahil alone. Find the number of days Sahil did the work.
a) Quantity I > Quantity II
b) Quantity I < Quantity II
c) Quantity I ≥ Quantity II

d) Quantity I ≤ Quantity II

e) Quantity I = Quantity II (or) Relationship cannot be determined

217) Quantity I: Sahil completed 40% of Project B alone and then the remaining part of the Project was done by Gagan and Disha together. Find per day wage of Gagan and Disha together If Sahil got Rs. 3200 as wage to complete 40% of the project.

Quantity II: Sahil, Jatin, Priya, Kapil and Reshma together started to complete the Project C. Reshma is 50% more efficient than Kapil who is 30% more efficient than Priya. Priya is 20% more efficient that Sahil. How much amount did Reshma get if the total wage is Rs. 1500 (approx)?

a) Quantity I > Quantity II

b) Quantity I < Quantity II

c) Quantity I ≥ Quantity II

d) Quantity I ≤ Quantity II

e) Quantity I = Quantity II (or) Relationship cannot be determined

218) Quantity I: Jatin got a project F from a company. The efficiency of Sahil working on that project is 20% more than Jatin and that of Gagan is 20% less than Jatin. Disha can do a piece of work in twice of time of Sahil, Jatin and Gagan complete the same work together. In the first 6 days Disha work alone after that she left and Sahil, Jatin and Gagan did the remaining work in 10 days. If Disha and Jatin started working alternatively begins with Disha, in how many days required to complete the whole work?

Quantity II: Sahil, Jatin and Gagan started working together to complete Project D, after 10 days Sahil left the work; Gagan left 5 days before the work was completed. In how many days the job was completed?

a) Quantity I ≥ Quantity II

b) Quantity I < Quantity II

c) Quantity I > Quantity II

d) Quantity I ≤ Quantity II

e) Quantity I = Quantity II (or) Relationship cannot be determined

219) Which project will take longer when all the five persons start working on the project?

a) Project A   b) Project B   c) Project C   d) Project D

e) None of these

220) Karan and Gagan together started working on project-D and project B on alternate days, starting with Project-D. Once one of the projects is completed, from the very next day Sahil joins with them on the remaining projects. How long did it take to complete both the Projects?

a) 10 (12/13)

b) 15 (12/13)

c) 12 (12/13)

d) 20 (12/13)

e) None of these

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Set 45: Mensuration

Directions (221 - 225): Study the following graph carefully and answer the given questions.

Shape	Total Surface area (cm²)	Volume (cm³)	Radius/ side(cm)	Height (cm)	Cost of paint the surface area per cm²	Time taken by Raja to paint the surface area (days)	Time taken by ram to paint the surface area (days)	Wage per day
Cylinder	924	2156	-	14	12	4	25	120
Cube	726	-	-	-	8	8	15	85
Cone	3696	12936	21	-	6	9	7	50
Hemisphere	4158	19404	-	-	5	6	4	180
sphere	-	-	12	-	-	3	5	900

Note: Time taken by Raja and Ram to paint the surface area is equal to the time taken by Raja and Ram to paint the Total surface area.

221) Find the cost to painting a frustum whose smaller radius is equal to the radius of cylinder and larger radius equals to the radius of hemisphere also its height is equal to that of cone height, if the cost of paint @5/cm²
a) Rs.25648
b) Rs.21340
c) Rs.21300
d) Rs.21568
e) None of these

222) Total cost to paint a cube is what percentage more/less than cylinder, if paint on both the objects is done by Ram? (Approximately)
a) 40%
b) 75%
c) 60%
d) 50%
e) 45%

223) The structure of a toy resembles hemisphere at the bottom, cylinder in the middle and cone at

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the top. Find the total cost to paint a toy by Ram if the number of days taken by Ram to paint CSA is 80% of TSA.

a) Rs 38368
b) Rs 40586
c) Rs 35668
d) Rs 25648
e) None of these

224) Sphere, cylinder and cube are melted to make 8 identical small spheres. These identical spheres are then put in a cylindrical jar. Ratio of height and radius of cylinder is 2:3. Ratio of radius of small identical sphere and radius of cylindrical jar is 1:3. Find the volume of cylindrical jar.

a) 12256 cm^3

b) 22500 cm^3
c) 19404 cm^3
d) 13115 cm^3
e) None of these

225) Find the volume of a cuboid. If the ratio of length of cuboid to the height of cylinder, ratio of radius of cone to breadth of cuboid and ratio of radius of sphere to height of cuboid is 6:7, 3:1 and 3:2.

a) 512 cm^3
b) 672 cm^3
c) 913 cm^3
d) 815 cm^3
e) None of these

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Set 46: Caselet with Table

Directions (226 - 230): Read the following information carefully and answer the given questions

In a company, total 400 employees working in three different departments viz. Content team, Technical team and HR team. Each works in one or more department. Out of total employees, 30% works in Content team. 20% of total employees work in only Technical team. 5% of total employees work in all three departments. 40 employees work in Technical as well as Content team but not in HR team. Ratio of employees working in only Technical team to only HR team is 5:9. Sum of employees who works in Technical as well as HR but not Content and the one works in Content as well as HR team but not in Technical team is 60. Number of employees working in Content as well as HR but not in Technical team is 20% of people working in all three departments.

Table below shows the salary per week and number of working hours of employees working in three departments

Department	Hours per week (Rs.)	Salary per week (Rs.)
Content	35	5250
Technical	45	9000
HR	40	9600

Note: No. of working days in a week is 5 days. To find salary of people working in two or more than two department calculate the average salary of the departments [For Ex. to find salary of people working in technical and HR but not content use: Average salary = (Only technical+ Only HR)/2]

226) Calculate the sum of salaries given to all employees per hour.
a) Rs.83000
b) Rs.90000
c) Rs.95000
d) Rs.100000
e) None of these

227) Find the ratio of monthly salary of one employee working in only content team, HR and
content but not technical team and employee working in technical and HR team but not content team. If the employee working in HR and content but not technical team work for 8 hours a day and employee working in technical and HR team but not content team work for 7 hours a day. (Assume there are 4 weeks in a month)
a) 107: 150: 200
b) 105: 156: 140
c) 200: 140: 105

d) 156: 108: 75

e) None of these

228) Quantity I: The salary received at the end of month by employee working in technical and HR team not content is approximately what percentage more or less than HR and content team but not technical team. (Assume there are 4 weeks in a month)

Quantity II: The salary received at the end of month by employee working in all three departments is approximately what percentage more or less than HR and content team but not technical team. (Assume there are 4 weeks in a month)

a) Quantity I > Quantity II

b) Quantity II > Quantity I

c) Quantity I = Quantity II (or) Relationship cannot be determined

d) Quantity I ≥ Quantity II

e) Quantity I ≤ Quantity II

229) Quantity I: Find the salary given to employees working in all three departments for technical and HR and content team by company in the month of February considering the year is leap year (considering the first day of February is Monday and holidays are on Saturday and Sunday)

Quantity II: Out of the total number of employees working in only technical team, the number of male employees is 35. And the employees working in only content, number of females is 20. Find the sum of salary per week earned by female employees of only technical team and male employees working in only content team.

a) Quantity I > Quantity II

b) Quantity II > Quantity I

c) Quantity I = Quantity II (or) Relationship cannot be determined

d) Quantity I ≥ Quantity II

e) Quantity I ≤ Quantity II

230) Which of the given statement is correct?

A) Number of employees working in only HR team is 144

B) If ratio of number of male to female employees in only technical team is 5:3. Then number of female are 24

C) Number of employees working in all the three teams is 25

D) Number of employees working in content and HR team but not in technical team is 4

a) A and D are correct

b) A and C are correct

c) A, B and C are correct

d) All are correct

e) None is correct

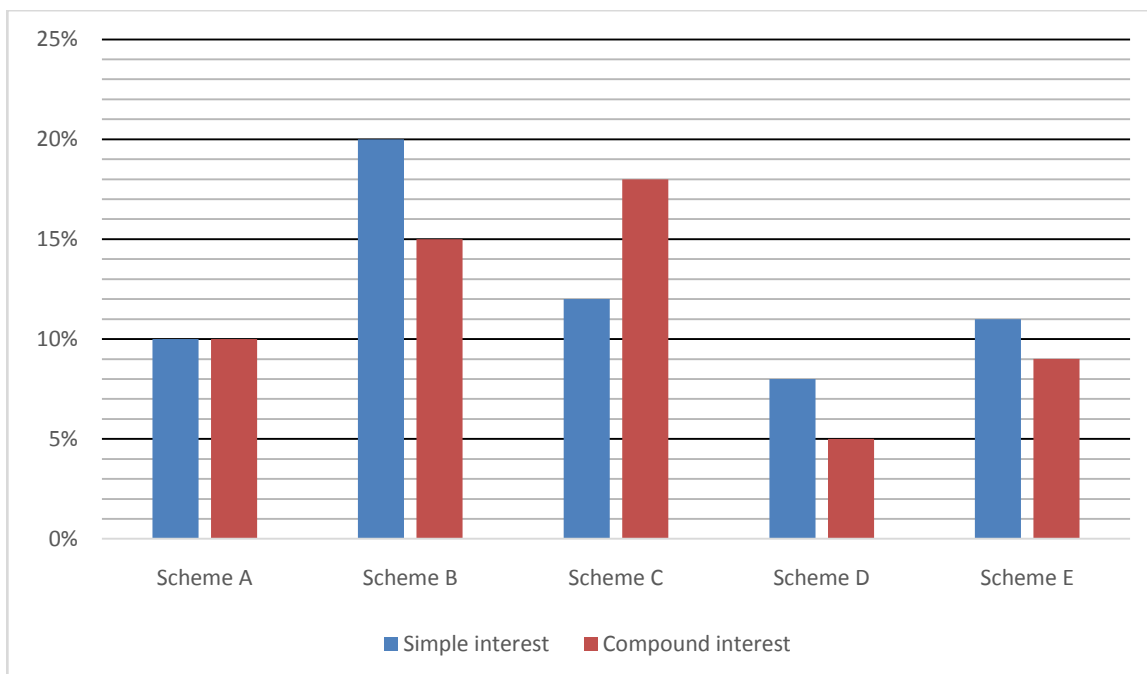**Click Here to View Video Solution for Above Question**

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Set 47: Simple and Compound Interest

Directions (231 - 235): Study the following information carefully and answer the given questions

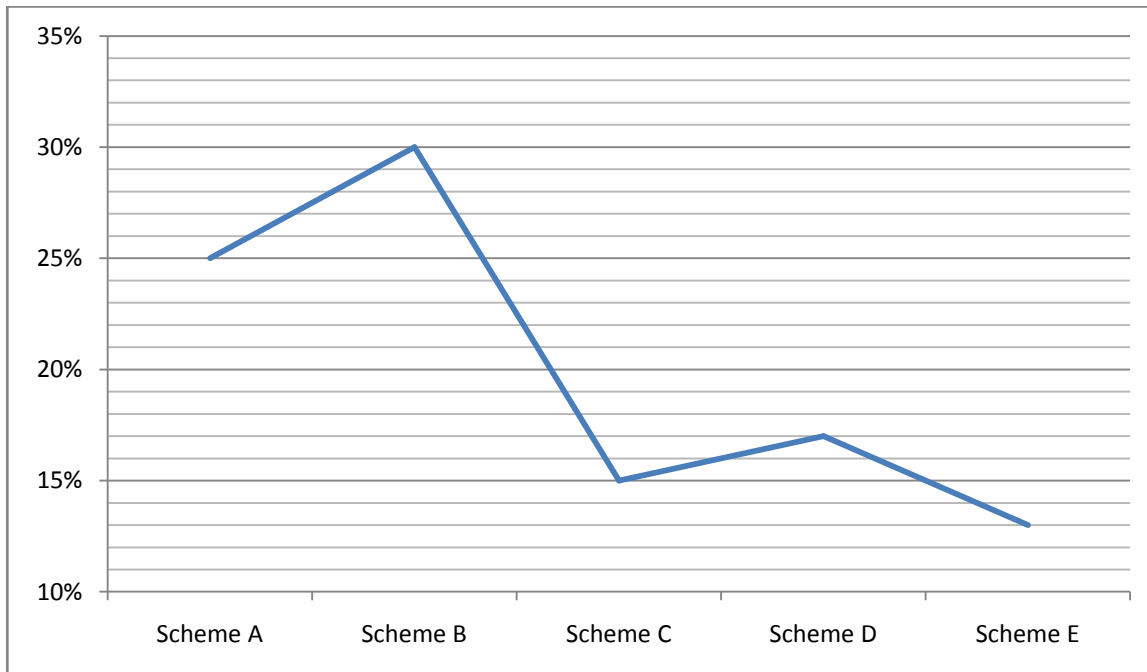Given graph shows the percentage of interest in various schemes

In graph percentage of total amount invested by Lalita in different schemes

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There was four generations in a family tree Sohan, Sohan father, grandfather, great grandfather. The great grandfather whose age was 85 years in 1862 has 50000 of property with him whom he sold to a zamindar and invested it in the scheme A at simple interest. He died in 1870. After his death, Sohan grandfather received total amount. He invested it in scheme B in the year 1991 at compound interest and died after 2 years on the date of investment. After that Sohan father received Rs. 25 less than the total amount and he invested the amount partly in scheme A at compound interest and partly in the scheme D at simple interest. The ratio of investment done by Sohan father in scheme A to scheme D is 3:4

231) Find the amount received by Sohan if his father dies after three years of investment?
a) Rs.135870   b) Rs.148710   c) Rs.152201
d) Rs.135403   e) None of these

232) Lalita invested Rs.80000 according to the investment plan. What will be the difference in interest earned if she invests all her money in simple interest for 4 years and compound interest for 2 years following the investment plan?
a) Rs.97104   b) Rs.31480   c) Rs.21379 d) Rs.21889
e) Rs.17699

233) Lalita invested all her money in scheme B at compound interest for 3 years while her sister Babita invested all her money in scheme D at compound interest for 4 years. Total amount received by Lalita is approximately what percent to the total amount received by Babita, if the ratio of amount invested by Lalita to Babita is 5: 3?
a) 209%
b) 220%
c) 231%
d) 198%

e) 239%

234) Find the relation between the following two quantities:
Quantity I: Difference between the interests earned by Lalita on investing in scheme B at simple interest for 3 years and in scheme C at compound interest for 2 years investing Rs. X
Quantity II: Sum of interest earned by Lalita on investing in scheme A and scheme C at simple for 2 years investing Rs. X
a) Quantity I > Quantity II
b) Quantity I < Quantity II
c) Quantity I = Quantity II (or) Relationship cannot be determined

d) Quantity I ≤ Quantity II
e) Quantity I ≥ Quantity II

235) Quantity I: Highest interest earned by Lalita investing at simple interest for 4 years investing Rs.10000
Quantity II: Amount received by Lalita investing in scheme C at compound interest for 2 years investing Rs.10000
a) Quantity I > Quantity II
b) Quantity I < Quantity II
c) Quantity I = Quantity II (or) Relationship cannot be determined
d) Quantity I ≤ Quantity II
e) Quantity I ≥ Quantity II

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Set 48: Time, Speed and Distance

Direction (236 - 240): Follow the given information to give the answer the following questions.

Deepak, Kamal, Gopal, Saurav, Neeraj, Sameer and Raj are seven friends living along a straight road in the given order starting with Deepak.

Saurav lives 150 km away from Deepak, and takes 1 hr 40 min to reach to Sameer. Deepak takes 5 hours to reach to Sameer who lives 250 km away from him. When Gopal and Raj move towards each other at 70 km/hr and 50 km/hr respectively, they meet after 1 hr 35 min. Gopal takes only 240/7 min to reach to Saurav. Kamal being 240 km away from Raj crosses Neeraj after 5 hr 40 min and meets Raj after 8 hours from start. Neeraj and Sameer meet after 24 minutes if they start moving simultaneously towards each other with speed in 3: 2 ratio.

Note: Speed of the every individual remains same at all instances.

236) On a weekend, all friends decided to meet at Deepak's house at 9: 00 pm sharp. At what time should Neeraj leave his house to get at location in time if he spends 10 minutes waiting for Kamal at Kamal's house?
a) 12:00 Am   b) 1:10 Pm   c) 1:30 Pm
d) 11:00 Am   e) None of these

237) Kamal and his girlfriend together left their office at 6: 30 pm and move towards their home with same speed as Kamal. Office is 120km away from Neeraj's house which is along the direction of Raj's house. Find the distance of house of Kamal's girlfriend from his house if he dropped Shivani (Kamal's girlfriend) her home at 7: 05 pm.
a) 272.5 Km
b) 200.5 Km
c) 175.25 Km
d) 300.75 Km
e) None of these

238) Find the ratio of distance between residence of Deepak and Raj and that of Gopal and Neeraj.

a) 5:2
b) 2:3
c) 1:2
d) 3:1
e) None of these

239) All friends decided to meet at Saurav's house, with the condition that they have to move towards Saurav house with the speed of the next friend they meet in the way starting with Deepak and Raj living at opposite ends. Find the difference in the time when the two groups reach at destination. (Rounded off up to two decimal points)
a) 1 hour
b) 1.5 hours
c) 2 hours
d) 2.25 hours
e) None of these

240) By what percent speed of Gopal is more or less than that of Raj?
a) 25%   b) 45%   c) 50%   d) 40%
e) None of these

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Set 49: Profit and loss

Directions (241 - 245): The following table shows different items sold by the shopkeeper, cost price/kg of items, percentage mark-up on cost price, marked price/kg and percentage discount offered on marked price.
(Note: Some values are missing, you need to calculate those values if required.)

Items	Cost Price/Kg	% Mark-up price	Marked Price/Kg	% Discount
A	-	-	-	9%
B	500	20%	-	-
C	-	10%	275	-
D	-	-	800	18%
E	750	-	-	-

241) Shopkeeper gives two successive discounts of 12% and 13% instead of single discount of 18% on item D. If percentage Mark-up price for the item is 33 1/3%, then his profit is decreased by what percent as compared to previous profit? (Approx.)
a) 37 %   b) 48 %   c) 78 %   d) 73 %   e) 69 %

242) How much quantity of item A is sold by shopkeeper if cost price of item A is Rs. 150 less than the twice of the marked price of item C and marked price of item A is 5/8 times of marked price of item D and total profit earned by selling item A is Rs.1320.
a) 26 kg

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b) 25 kg
c) 20 kg
d) 24 kg
e) 28 kg

243) To earn more profit shopkeeper mixes 5kg of cheaper quality of item C (Costs Rs.120/kg) with the 15kg of pure item C and sold the mixture at a discount which is 10% more than the original discount offered on item C. If original discount offered on item C is 14%, then find the new profit % on selling the whole quantity of item C.
a) 14 %
b) 21 %
c) 13 %
d) 18 %
e) 7 %

244) If 1kg of item B is spoiled out of total 10 kg, then what is the total profit or loss (in Rs.) made by shopkeeper on selling a remaining quantity of the item, if a discount of 8% is given on marked price of the item.
a) Rs.32
b) Rs.85
c) Rs.25
d) Rs.35
e) None of these

245) Find the profit percentage of item E, if it marks-up 20% above the cost price and allows 17% discount
a) 0.4% profit
b) 4% loss
c) 0.4% loss
d) 4% profit
e) 0.04% profit

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Set 50: Probability

Directions (246 - 250): Study the following information carefully and answer the given questions

Three bags A, B and C contains three different coloured balls Red, Blue and Yellow.

Bar graph given below shows the number of Red colour balls in three different bags A, B and C while the pie chart given below shows the distribution (degree) of Blue colour balls in those three bags.
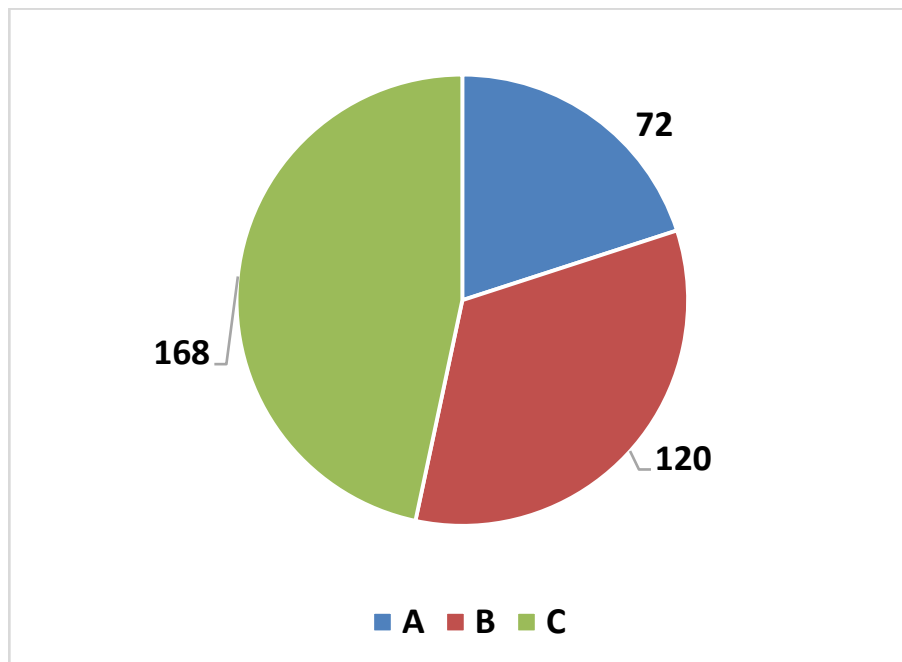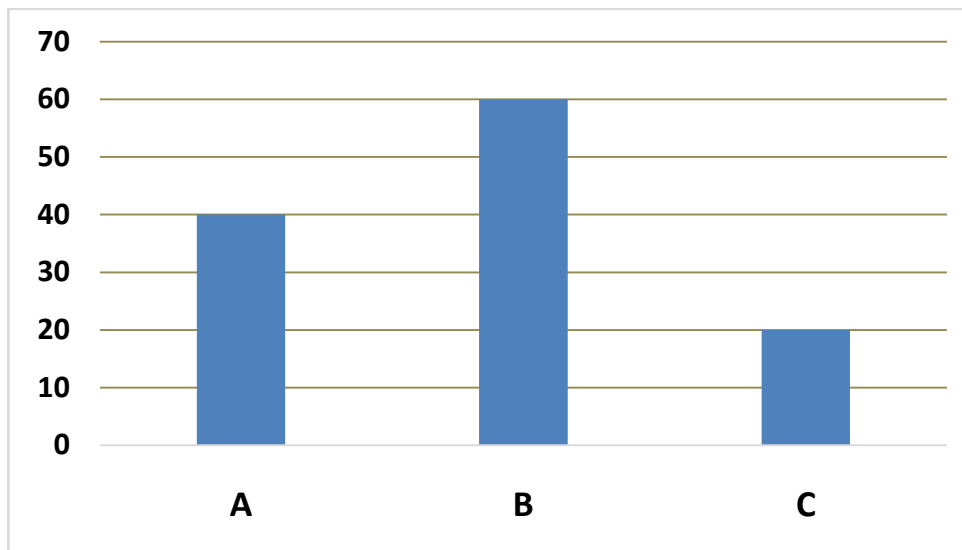
Some extra information is also given:

When two balls are selected at random from bag A, then probability that one of them is Red and other is Blue is (20/119) and ratio of Blue to Yellow balls in that bag is 3: 5.

When two balls are selected at random from bag B, then probability that both the balls are Blue is (49/447). The difference between the probability of selecting a Blue ball from bag C and the probability of selecting Blue ball from bag B is 1/4.

246) If two balls from bag A, one ball from bag B and one ball from bag C, then what is the probability that both the balls selected from bag A is of Red colour, ball selected from bag B is of Yellow colour and ball selected from bag C is of Blue colour?
a) (8/365)
b) (13/765)
c) (3/65)
d) (10/67)
e) None of these

247) What is the difference between the probability of selecting two Blue colour balls from bag A and the probability of selecting either a red colour ball or a blue colour ball from bag B?
a) (401/7140)
b) (481/7400)
c) (5903/7400)
d) (4801/7140)
e) None of these

248) The difference between the probabilities of selecting one blue colour ball from bag A and bag B is approximately how much per cent less than the difference between the probabilities of selecting one red colour ball from bag B and bag C?
a) (450/7) %

b) (550/9) %
c) (250/3) %
d) (350/9) %
e) None of these

249) If two balls are selected at random from each of the bag B and bag C, then what is the probability the both the selected balls are one among the red colour or of blue colour or of yellow colour?
a) (9/16)
b) (93/180)
c) (17/36)
d) (11/36)
e) None of these

250) If 'p' number of yellow colour balls from bag C are transferred to bag B and 83(1/3) % of total red colour balls from bag B are transferred to bag C, then the probability of selecting either a red colour ball from bag B or a blue colour ball from bag C is (11/20), then what is the value of 'p'.
a) 25
b) 20
c) 10
d) 15
e) None of these

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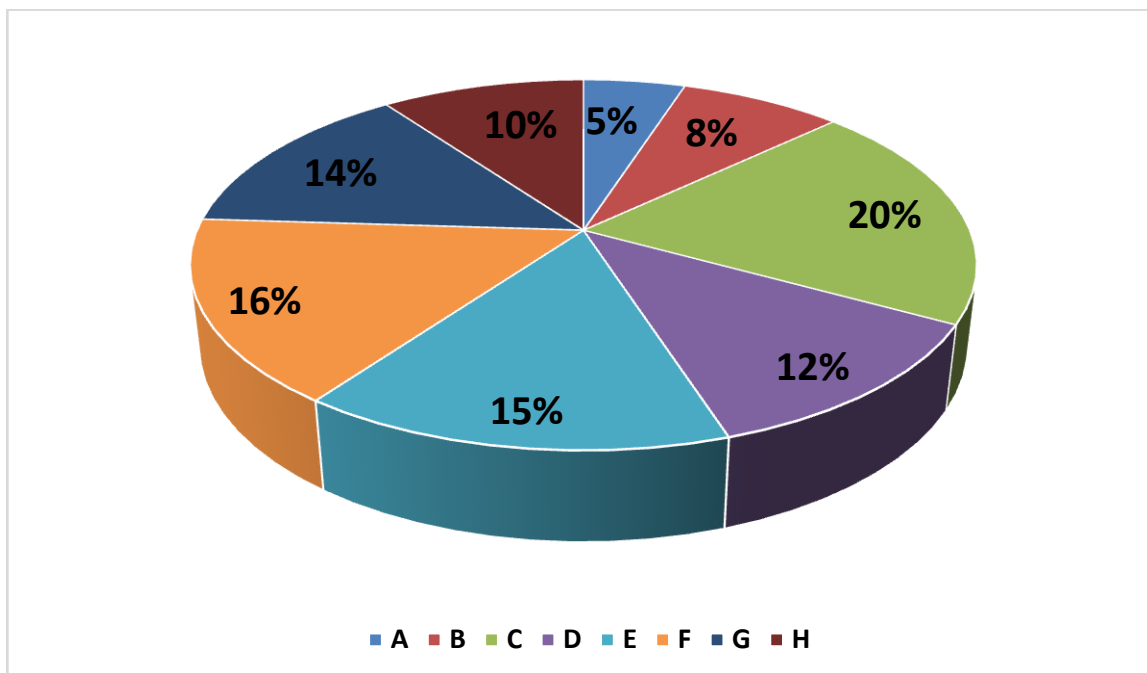
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Set 51: Mixture and Alligation

Directions (251 – 255): Study the following information carefully and answer the question given below:

The following pie chart represents percentage wise distribution of amount of mixture of milk and water in eight containers.

Total amount of mixture in all the eight containers = 3000 litres.

The following table represents ratio of milk and water in the given eight containers.

Containers	Milk : Water
A	8:7
B	7:5
C	5:3
D	5:4
E	5:4
F	7:5
G	4:3
H	3:2

251) The milkman sold x litres of the mixture from container D and added 5 litres of pure milk and 22 litres of water to the remaining mixture such that ratio of milk and water in the mixture became 11:10. The milkman again sold (x + 12) litres of the mixture from container D and added 4 litres of pure milk and 10 litres of water to the remaining mixture. Find the difference between amounts of milk and water in the final mixture of container D.
a) 6 litres   b) 4 litres   c) 5 litres   d) 8 litres
e) None of these

252) The milkman sold 180 litres mixture from container E and 240 litres mixture from container C. He then mixed remaining mixture of container E with the remaining mixture of container C. He then added five litres of pure milk and five litres of water to the mixture. Find the respective ratio of milk and water in the final mixture.
a) 15: 8   b) 19: 13   c) 17: 15   d) 11: 7
e) None of these

253) Amount of milk in container K is average of the amount of milk in container A and container B
and amount of water in container K is 20% less than the average of the amount of water in container A and container B. Amount of milk in container K is approximately what percent more than the amount of water in container K.
a) 57% b) 53%   c) 41%   d) 39%   e) 62%

254) Find the relation between following two quantities:
Quantity I: The milkman sold 60 litres of the mixture from container F and added 5 litres of pure milk and 15 litres of water to the remaining mixture. Find the difference between amount of milk and amount of water in the final mixture of container F.
Quantity II: The milkman sold 56 litres of the mixture from container G and added 22 litres of pure milk and 14 litres of water to the remaining mixture. Find the difference between amount of milk and amount of water in the final mixture of container G.
a) Quantity I > Quantity II
b) Quantity I < Quantity II
c) Quantity I ≥ Quantity II
d) Quantity I ≤ Quantity II

e) Quantity I = Quantity II or Relation cannot be determined.

255) Amount of milk in container M is what percent of the amount of milk in container C?

Statement I: Total quantity of mixture in container M is 20% more than the total quantity of mixture in container H.

Statement II: Difference between amount of milk and amount of water in container M is 10 more than that of container D. (Assume Quantity of Milk is maximum)

a) Statement I alone is sufficient to answer the question, but the statement II alone is not sufficient.

b) Statement II alone is sufficient to answer the question, but the statement I alone is not sufficient.

c) Either statement I alone or statement II alone is sufficient to answer the question.

d) Both statements I and II together are needed to answer the question.

e) Both statements I and II together are not sufficient to answer the question.

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Set 52: Probability

Directions (256 – 260): Study the following information carefully and answer the question given below:
There are five bags which contain five different coloured balls. The following table represents number of different coloured balls in five different bags. Some data in the following table are missing.

Bags	Red	Green	Yellow	White	Orange
A	5	--	4	2	--
B	--	6	--	4	5
C	8	4	2	--	--
D	4	--	6	--	--
E	--	5	--	--	7

Probability of drawing one Red ball from bag A is 1/4.
Probability of drawing one Orange ball from bag B is 1/5.
Probability of drawing one green ball from bag C is 1/6.
Probability of drawing one White ball from bag D is 1/6.
Probability of drawing one Yellow ball from bag E is 1/12.
Number of White balls and number of Orange balls in bag D are same.

256) Probability of drawing one Orange ball from bag A is 3/10. Find the respective ratio of the probability of drawing two Red balls and two Green balls from bag A and probability of drawing two White balls and two Orange balls from that bag.
a) 3:2
b) 5:4
c) 2:1
d) 4:3
e) None of these

257) Probability of drawing one Yellow ball from bag B is 7/25. Probability of drawing one Green ball and one Yellow ball from bag B is approximately what percent of the probability of drawing five balls from bag B such that each ball is of different colour?
a) 313%
b) 189%
c) 273%
d) 295%
e) 153%

258) Probability of drawing one White ball from bag C is ¼. Find the average of the probability of drawing five balls from bag C such that all the balls are of same colour and probability of drawing five balls from bag C such that each ball is of different colour.
a) 387/21252
b) 799/42504

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c) 587/21252
d) 599/42504
e) None of these

259) Probability of drawing one Red ball from bag D is 2/9. Find the relation between following two quantities:

Quantity I: Find the probability of drawing 1 Yellow ball, 2 White balls and 1 Orange ball from bag D.

Quantity II: Find the probability of drawing 3 Red balls and 1 Green ball from bag D.

a) Quantity I > Quantity II
b) Quantity I < Quantity II
c) Quantity I ≥ Quantity II
d) Quantity I ≤ Quantity II
e) Quantity I = Quantity II or Relation cannot be determined.

260) Find the difference between probability of drawing 2 Green balls from bag E and probability of drawing 2 White balls from bag E.

Statement I: Probability of drawing one Red ball from bag E is 1/4.

Statement II: Number of White balls in bag E is twice the number of Yellow balls in that bag.

a) Statement I alone is sufficient to answer the question, but the statement II alone is not sufficient.

b) Statement II alone is sufficient to answer the question, but the statement I alone is not sufficient.

c) Either statement I alone or statement II alone is sufficient to answer the question.

d) Both statements I and II together are needed to answer the question.

e) Both statements I and II together are not sufficient to answer the question.

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Set 53: Boats and Streams

Directions (261 – 265): Study the following information carefully and answer the question given below:

There are six boats, each runs between different places. The following bar graph represents downstream speeds of the six boats on Sunday.

(Note: Speed of the boats in still water remains same every day.)
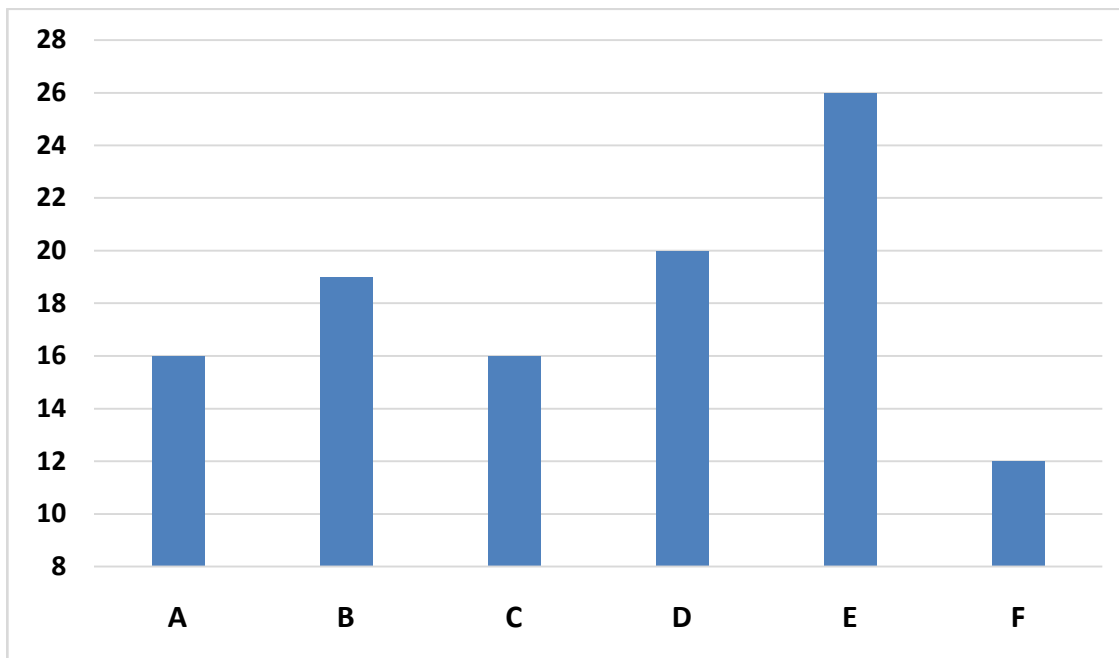
Upstream speed of boat D on Sunday is half of its downstream speed on that day. Upstream speed of boat C on Sunday is 20% more than the upstream speed of boat D on that day. Respective ratio of the upstream speeds of boat C and boat A on Sunday is 3:2. Upstream speed of boat B on Sunday is 5 Km/h more than the upstream speed of boat A on that day. Respective ratio of the downstream speed and upstream speed of boat E on Sunday is 13:7. Upstream speed of boat C on Sunday is 50% more than the upstream speed of boat F on Sunday.

The following table represents Places between which the boats run.

Boats	Places
A	P – Q
B	Q – R
C	R – S
D	S – T
E	T – U
F	U – V

The following line graph represents distance between different places.
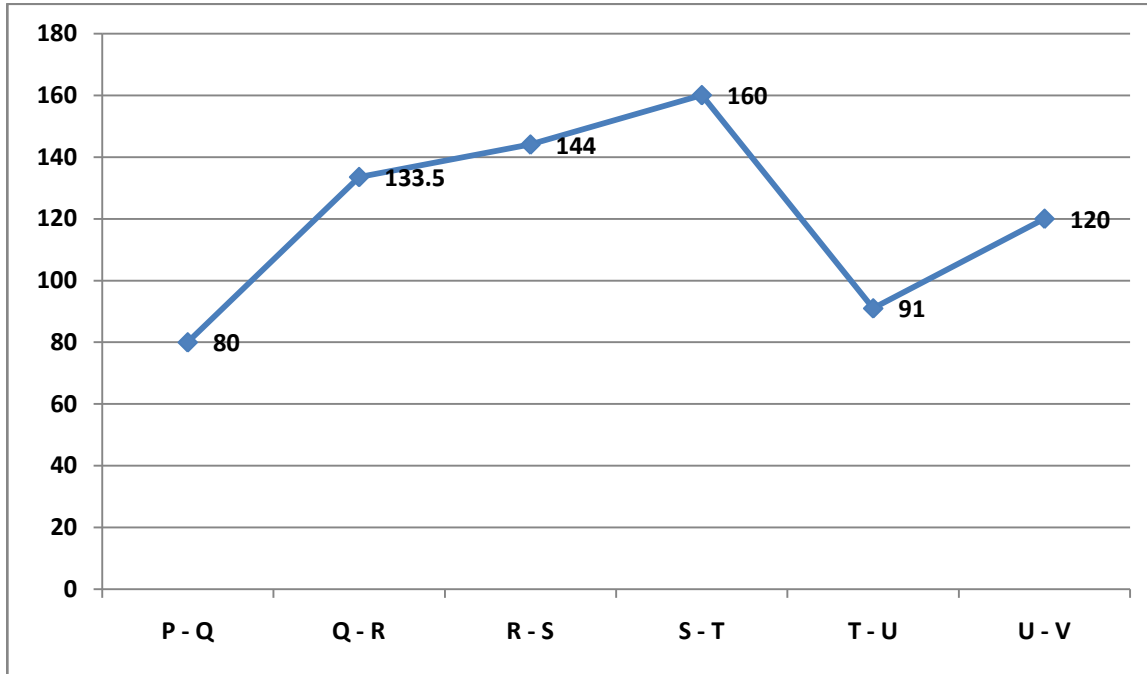
261) Boat A goes P to Q and return back to P on Sunday. Water flows from P to Q on Sunday. It goes P to Q and return back to P and again goes to Q on Monday. Water flows from Q to P on Monday. Speed of the stream on Monday is 2 Km/h more than that of Sunday. Find the respective ratio of the time taken by boat A to complete its journey on Sunday and Monday.
a) 21:29
b) 27:32
c) 25:31
d) 23:27
e) None of these

262) If speed of the stream for boat B is increased by 1 Km/h on Monday, find the total time taken by boat B to go from Q to R and return to Q for two times on Monday. Water flows from Q to R while going and Water is still while returning on Monday.
a) 35 hours
b) 18 hours
c) 30 hours
d) 22 hours
e) 27 hours

263) Boat C goes R to S and return to half of the distance between R – S on Sunday. Water flows from S to R on Sunday. Boat C goes R to S and return to R on Tuesday. Water is still on Tuesday. Time taken by boat C to complete its journey on Sunday is approximately what percent of the time taken by boat C to complete its journey on Tuesday.
a) 90%
b) 75%
c) 45%

d) 60%

e) 80%

264) Find the relation between following two quantities:

Quantity I: Find the time taken by boat D to go S to T and return to S on Wednesday. Water flows from S to T on Wednesday and speed of the stream on Wednesday is 2 Km/h less than that of Sunday.

Quantity II: Find the time taken by boat E to go T to U and return to T in still water.

a) Quantity I > Quantity II

b) Quantity I < Quantity II

c) Quantity I ≥ Quantity II

d) Quantity I ≤ Quantity II

e) Quantity I = Quantity II or Relation cannot be determined.

265) Find the time taken by boat F to go U to V and return to half of the distance between U and V on Friday.

Statement I: Speed of the stream for boat F on Friday is 3 Km/h more than that of Sunday.

Statement II: Upstream speed of boat F on Friday is 62.5% of the upstream speed of boat F on Sunday.

a) Statement I alone is sufficient to answer the question, but the statement II alone is not sufficient.

b) Statement II alone is sufficient to answer the question, but the statement I alone is not sufficient.

c) Either statement I alone or statement II alone is sufficient to answer the question.

d) Both statements I and II together are needed to answer the question.

e) Both statements I and II together are not sufficient to answer the question.

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Set 54: Partnership

Directions (266 - 270): Study the following information carefully and answer the questions give below:

Seven persons Kusum, Malti, Rakhi, Heena, Farheen, Umang and Gauri entered into a partnership with investment of Rs. K, Rs.(K + 12000), Rs.(K + 30000), Rs.(K − 20000), Rs.(2K − 50000), Rs.(K + 60000) and Rs.(K + 10000). After one year, Mauli joined them with investment of Rs.(2K − 10000) and Kusum invested Rs.40000 more. After one more year, Malti invested Rs.11000 more, Rakhi withdrew Rs.10000 and Heena doubled his investment. After one more year, Farheen invested Rs.20000 more, Umang withdrew half of his investment amount and Gauri doubled his investment.

At the end of four years, they earned a total profit of Rs.368000 and share of Malti in the profit is Rs.46000.

266) Find the difference between the share of Rakhi and Heena in the profit.
a) Rs.28000
b) Rs.24000
c) Rs.46000
d) Rs.32000
e) None of these

267) Initial amount invested by Farheen is approximately what percent of the initial amount invested by Gauri?
a) 50%   b) 30%   c) 40%   d) 60%   e) None of these

268) Find the respective ratio of share of Kusum and Mauli in the profit.

a) 6:5   b) 4:3   c) 3:2   d) 5:4   e) None of these

269) Find the sum of initial amount invested by Malti, Rakhi and Heena.
a) Rs.142000
b) Rs.158000
c) Rs.132000
d) Rs.148000
e) None of these

270) Share of Umang in the profit is what percent more than the share of Gauri in the profit?
a) 30%   b) 35%   c) 40%   d) 55%   e) None of these

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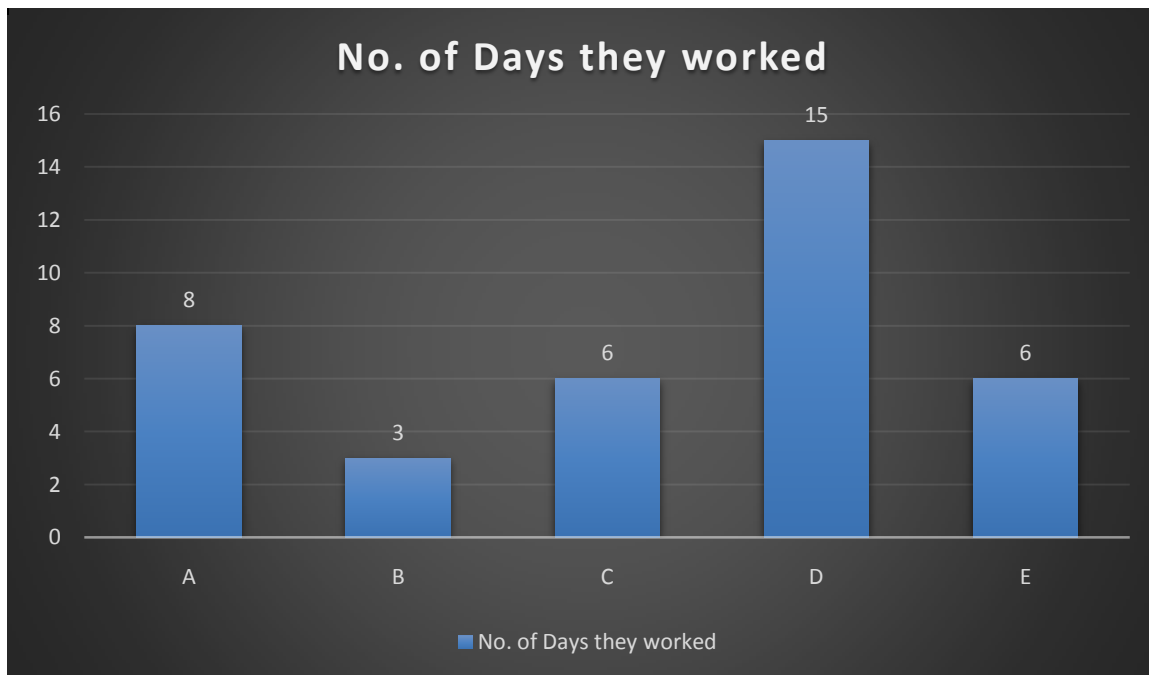Subscribe Our Yearly Mock Test Package | Click Here for SBI PO/ Clerk Pre Online Live Classes (Crash Course)
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Set 55: Caselet based on Trains

Directions (271 -27 5): Read the following information carefully and answer the given questions

There are six different trains viz. A, B, C, D, E and F. Train A can cross a tunnel 120m length is the same time as train F can cross a person standing on the platform. Train F can cross a tunnel double its length in 45 seconds. Time taken by train D to cross a tunnel 140 m length in twice the time taken by the same train to cross a pole. Train C can cross a pole in twice the time taken by train E can cross a pole also speed of train E is 20% more than the speed of train C. Train B takes 12 seconds to cross a platform of 180 m. Train C can cross a goods train of length 150% more the length of train B in 10 seconds also the speed of goods train is 15 m/Sec.

Ratio of length of train A and train B is 3:2

Ratio of speed of train A and Train B is 4:5

Ratio of Length of train A to train E is 1: 2

Ratio of speed of train D, E and F respectively is 4: 6: 3

271) Find the length of train F with the help of following statement

A) Train B and train C cross a tunnel approaching from different side at the same time

B) Train B and train F cross the tunnel approaching from opposite side at the same time

C) It is given that both train cross the tunnel at the same time

a) Both A and B

b) Both B and C

c) Only A

d) Only B

e) None of these

272) Distance between two station P and Q is 800 km. Train A starts from station P towards station Q at 4:30 am and 30 mins later train B starts from station Q towards station P, some problem arise in train B after travelling for 4 hours at it started to travel at 40km/hr. At 10.00 am, station master signaled a problem on track. Find out what happened?

Both trains crashed into each other

Train stopped earlier and distance between two trains was 4 km

Train stopped earlier and distance between two trains was 15 km

Train crashed into each other and station master get information late by 20 mins

None of these

273) Train C and train D started to move toward each other difference between them when they were stationary is 15.46 km. Find the time require to cross each other completely.

a) 152 seconds

b) 145 seconds
c) 150 seconds
d) 120 seconds
e) 160 seconds

274) Train D departs from New Delhi towards Bahadurgarh which is at 500 km from New Delhi. After 20 mins train E starts from New Delhi after how many hours train E overtakes train D? (Approximately
a) 37 min
b) 45 min

c) 40 min
d) 48 min
e) 42 min

275) Time taken by train A to overtake train B is how much more or less than by train E to overtake train D? (Approximately)
a) 120%
b) 170%
c) 260%
d) 220%
e) 280%

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Set 56: Caselet

Directions (276- 280): Read the following passage carefully and answer the given questions.

In a shop, there are four different colour water bottles viz. Pink, Green, Yellow and Red placed in three rows viz. R1, R2 and R3. Number of bottles in each row is same.

Number of pink bottles in R1 is one more than the number of yellow bottles and green bottles in R1 and R3 respectively.

Number of yellow bottles in R1 is 5 less than the green bottles, yellow bottles and red bottles in R1, R2 and R3 respectively.

The ratio of the number of green bottles in R2, red bottles in R3 and pink bottles in R3 is 1: 2: 1.

Number of red bottles in R2 is 90% of number of red bottles in R3.

The ratio of the number of pink bottles in R2, yellow bottles in R3 and red bottles in R1 is 8: 9: 7.

Total number of red bottles in R1 and R3 together is 41 from that R1 has one bottle more than R3.

276) If two bottles taken from R1, what is the probability of getting at least one pink bottle?
a) 251/639   b) 125/639   c) 254/639   d) 173/639
e) 215/639

277) What is the ratio between the number of red bottles and number of green bottles in all the three rows?
a) 51: 62   b) 59: 45   c) 49: 51   d) 63: 48
e) None of these

278) Number of pink bottles in R1 and R2 together is approximately what percentage more/less than the number of yellow bottles in R2?
a) 80%   b) 120%   c) 100%   d) 75%   e) 50%

279) Find the average number of green bottles in all the given rows
a) 15   b) 12   c) 9   d) 18   e) 21

280) What is the difference between the total pink bottles and total yellow bottles?
a) 8   b) 10   c) 5   d) 15   e) 12

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Set 57: Time and work
Directions (281 - 285): Study the given bar graph and the pie chart carefully:

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Percentage of work done to complete the project

A 20%
B 10%
C 25%
D 30%
E 15%

■ A ■ B ■ C ■ D ■ E
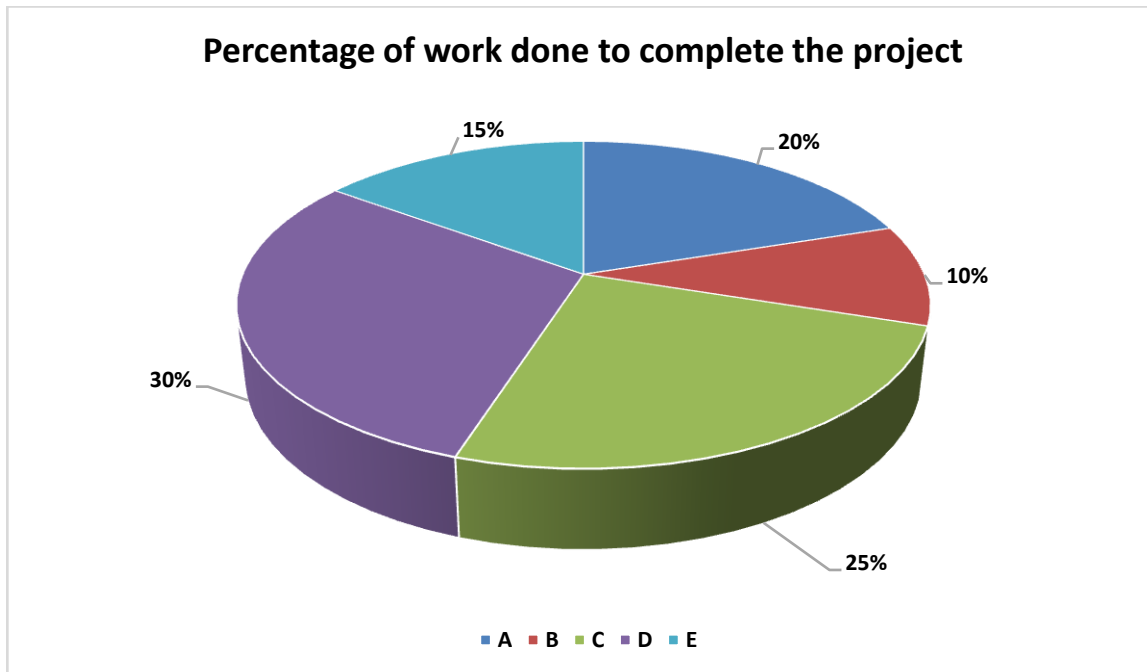
281) G who can complete whole work in 30 days replaced A and did A's part of work. He left and then B also worked for same number of days as G. If remaining work was completed by M who can do complete work in one-fourth the number of days in which E can complete the work, then in how many days was the whole work completed?
a) 18 b) 22   c) 14   d) 21   e) None

282) P is 20% more efficient than B and Q is 60% more efficient than C. They worked together for 5 days and left the work, after which the remaining work was completed by D in?
a) 26 1/3   b) 25   c) 23 1/3   d) 24   e) 18

283) If all people divides the work equally. In how many days will the work be completed this way?
a) 37.8   b) 45.9   c) 43.5   d) 36.8   e) None of these

284) A and B started doing the work. After 10 days they both left, and C joined the work. He completed his part of work. Now the remaining work was completed by F in 16 days. In how many days can F complete whole work?
a) 99   b) 78   c) 87   d) 79   e) 96

285) In how many days B can complete the whole work?
a) 34   b) 31   c) 32   d) 30   e) None of these

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Set 58: Boats and Streams

Directions (286- 290): Study the following and answer the following questions.

The table shows the distance travelled by five different boats upstream and downstream in same time and the line chart shows the speed of stream.

Boat	Upstream Distance	Downstream Distance
A	120	220
B	120	165
C	135	265
D	200	320
E	225	360
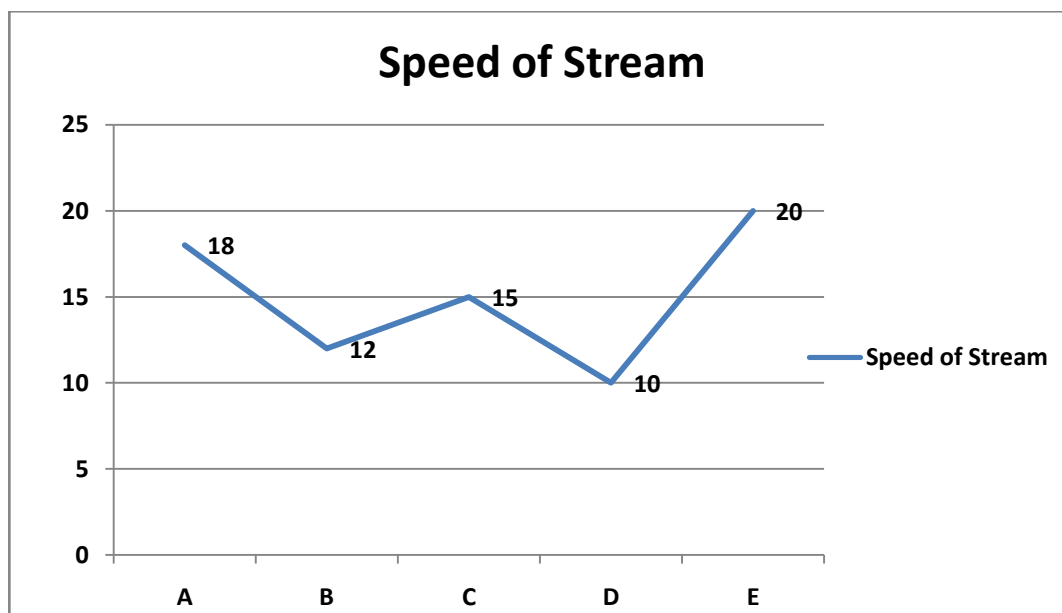
Speed of Stream

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286) Find the ratio of the speed of boats A in still water to the speed of boats B in still water.
a) 154:188 b) 153:190 c) 125:214 d) 144:166
e) 214:219

287) The speeds of the boat M in still water is 46 km/hr less than the speed of the boat B in still water. If the boat M travels 126 km distance downstream and 81 km distance upstream in 7 hours 30 minutes, then what is the speed of stream of boat M?
a) 15 km/hr b) 23 km/hr c) 20 km/hr d) 12 km/hr
e) 17 km/hr

288) If the speed of the boat A in still water is increased by 40% and the speed of stream is increased by 90%, then find the time taken by boat A to cover the upstream distance of 378 km.
a) 8.5 hours b) 4.5 hours c) 7.3 hours d) 6.5 hours
e) 2.5 hours

289) The speed of boat B and boat D in still water together is approximately how much percentage more than the speed of stream of the same boats together?
a) 178%   b) 835%   c) 521%   d) 441%
e) 624%

290) The distance between point P and point Q is 480 km. If the boat E travels from point P and point Q upstream and downstream with the speed of 140km/hr in still water, then what is the total time taken by the boat E to cover the total distance?
a) 7 hours
b) 6 hours
c) 2.5 hours
d) 8 hours
e) 6.5 hours

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Set 59: Pipes and cistern

Directions (291 - 295): Study the given Radar Chart and the Pie chart carefully. Time taken by the pipes to fill a tank/cistern (hours/minutes)
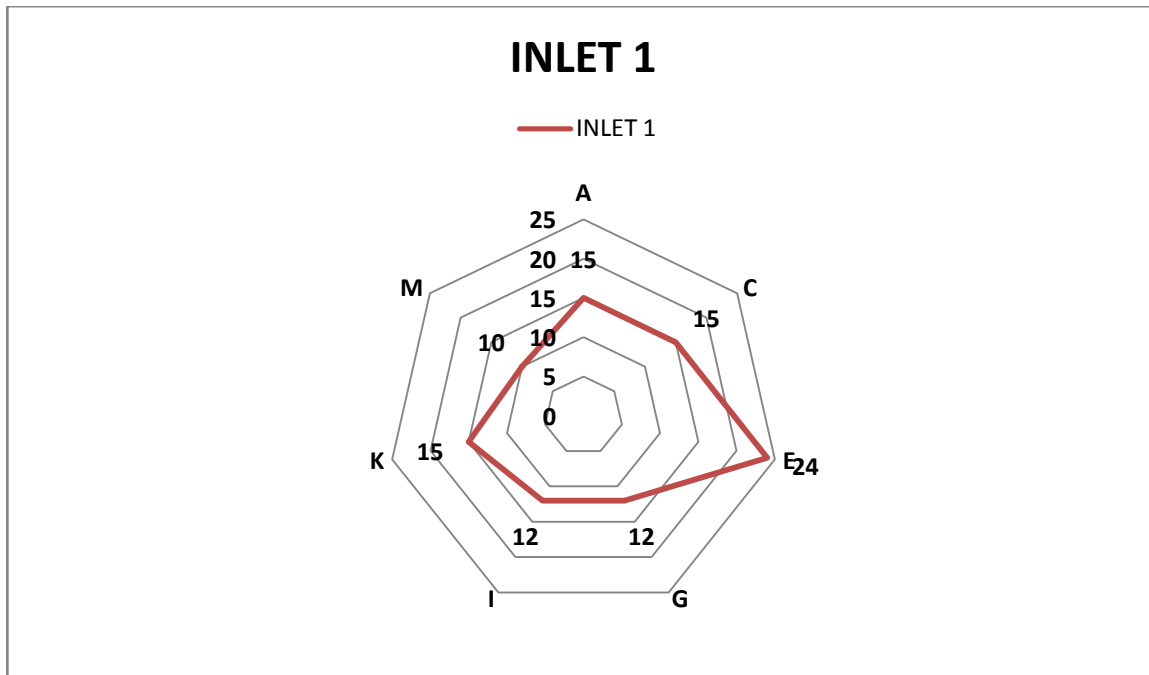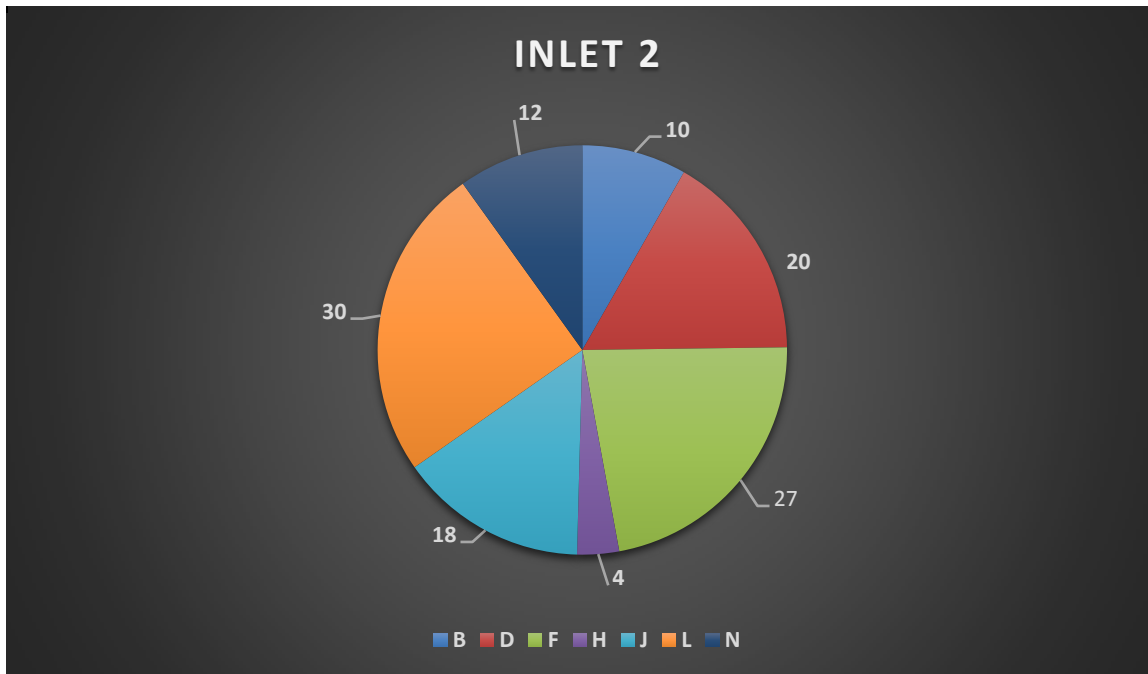
291) Three pipes R, A and B can fill the tank. R can fill the tank 5 minutes less than that of B. If all the pipes are opened together and pipe B is turned off 5 minutes before the tank is filled. Then find the time in which the tank will full.
a) 45/11hr   b) 23/15hr   c) 39/12hr   d) 15/18hr
e) None of these

292) Two pipes I and J are opened simultaneously and it is found that due to leakage in the bottom of the tank it took 48 minutes' excess time to fill the cistern. When is the cistern full, in what time will the leak empty it?
a) 15hr   b) 80hr   c) 72hr   d) 15hr   e) None

293) A waste pipe, W can carry off 12 litre of water per minute. If all the pipes M, N and W, are opened when the tank is full and it takes one hour to empty the tank. Find the capacity of the tank.
a) 60   b) 25   c) 35   d) 85   e) None of these

294) Two pipes K, and L are opened and when the tank is 1/3 full a leak is developed due to which 1/3 water supplied by the pipe leaks out. What is the total time to fill the tank?
a) 25/2 min   b) 40/3 min   c) 18/9 min   d) 10/4 min
e) None of these

295) Three pipes N, C and D can fill a tank. If pipe N is opened all the time and pipe C and D are opened for one hour alternatively. The tank will be full in
a) 5 hr   b) 3 hr   c) 8 hr   d) 7 hr   e) None of these

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(OR)
Scan the Below Given QR Code:

Set 60: Partnership

Directions (296 - 300): Study the given information carefully and answer the given questions.

Three Friends namely, P, Q, R thought of starting a business and so, they all entered into partnership. In 12 months, they invested 3 times, each at equal interval. The initial investment for the first interval was made in Ratio 4:2:3. In the second interval, they invest money in ratio 3:4:3 while for the third interval, P invested two times of the previous investment made, whereas Q and R invested Rs 200 more than their respective previous investment made. At the time of end of second interval, R's total investment was Rs 200 less than that of P at that time.

296) The difference between the shares of profit of Q & R from total profit is 1300 and the total shares of profit of P & R from total profit is 16250. If at the end of 8 months, had all investment doubled the amount than their respective previous investment what would be the total profit at the end of year?
a) 27250 b) 25350 c) 26150 d) 27350 e) None

297) If the ratio of total profit to Q's share in profit after a year is 34: 11, find the total investment made by R?
a) 2000 b) 2400 c) 1800 d) 1500 e) 3200

298) In the 1ˢᵗ question, what is the ratio obtained in sequence Q: P: R ?
a) 12: 14: 13

b) 13: 14: 12
c) 14: 13: 12
d) 13: 12: 14
e) None

299) Two other person J & K got into business with investment of Rs 600 and Rs 500 Respectively. Then, C replaces K after 4 months, with x% capital of K. After a year, C's share out of the total profit is 5600. Find X. Total profit is 24000.
a) 70% b) 80% c) 60% d) 50% e) None

300) A, B and C started a business by investing Rs. 20,000, Rs. 28,000 and Rs. 36,000 respectively. After 6 months, A and B withdrew an amount of Rs. 8,000 each and C invested an additional amount of Rs. 8,000. All of them invested for equal

period of time. If at the end of the year, C got Rs. 12,550 as his share of profit, what was the total profit earned?

a) 27500

b) 25100

c) 13300

d) 11300

e) 16500

Click Here to View Video Solution for Above Question

(OR)

Scan the Below Given QR Code:

Answers and Explanation:

Set 01 :

Direction: (1 - 5):

Solutions Day 1 : Given, Let us take speed of boat be x kmph

$150/(x-15) – 200/(x+15)= 10$

$150x+2250-200x+3000=10x2-2250$

$=> 10x2+50x-7500=0$

$=>x2+5x-750=0$

$=>x= -30$ and 25 (Eliminate –ve value)

Days	Downstream distance	Upstream distance	Speed of boat	Speed of stream	DS speed	Up stream speed	Total time
Day 1	200	150	25	15	40	10	20
Day 2	160	240	30	10	40	20	16
Day 3	240	200	40	20	60	20	14
Day 4	200	100	30	20	50	10	14

1. Answer: b

Required difference = (200+160+240+200) – (150+240+200+100)

=> 800- 690 = 110 km

2. Answer: c

Required percentage = [(30+40)-(15+20)] /(15+20)*100

=> (35/35)*100 = 100%

3. Answer: d

Required ratio = (160+240+200+100): (200+150+240+200)

=>700: 790

=> 70:79

4.Answer: c

Day 1 = 200+150=350

Day 2 = 160+240= 400

Day 3 = 240+200 = 440

Day 4 = 200+100 = 300

5. Answer: b

Given,

160/ (30+10) + 140/(30-10) = 160/40 +140/20

=>4+7 = 11 hours

Set 02 :

Direction: (6 - 10):

Total number of days taken by Swathi to complete Job-A = 5/20*100 = 25 days

Total number of days taken by Shivani to complete Job-A = 25/5 *4 = 20 days

Total number of days taken by Swathi to complete Job-B = 15/50*100 = 30 days

Total number of days taken by Shivani to complete Job-B = 30/6 *5 = 25 days

Total number of days taken by Swathi to complete Job-C = 12/40*100 = 30 days

Total number of days taken by Shivani to complete Job-C = 30/2 *1 = 15 days

Total number of days taken by Swathi to complete Job-D =3/15*100 = 20 days

Total number of days taken by Shivani to complete Job-D = 20/5 *6 = 24 days

Total number of days taken by Swathi to complete Job-E = 6/30*100 = 20 days

Total number of days taken by Shivani to complete Job-E = 20/5 *4 = 16 days

Job Name	Swathi	Shivani
A	25	20
B	30	25
C	30	15
D	20	24
E	20	16

6. Answer: a) :

Statement I: Swathi and Shivani started working to complete Job-C, Sumaya also joins with them to complete the work 4 days before the actual time taken by Swathi and Shivani working together.

LCM of 15 and 30 = 30

Total work = 30 units

Swathi = 1 unit

Shivani = 2 units

No. of days taken by Swathi and Shivani working together = 30/(1+2)

= 30/3 = 10 days

No. of days taken by Swathi, Shivani and Sumaya working together= 10 – 4

= 6 days

Swathi, Shivani and Sumaya work per day = 30/6 = 5 units

Sumaya work per day = 5 – 2 – 1 = 2 units

No. of days taken by Sumaya alone to complete the whole work = 30/2 = 15 days

Statement I alone is sufficient to answer the question.

Statement II: Swathi started working to complete Job-C with 75% of her original efficiency. After some days Sumaya joins with her and completed Job-C in 30 days. The ratio of the number of days taken by Swathi and Sumaya to complete Job-C is 2: 1.

Here there is no information about Sumaya's one day work. From that we cannot answer the given question. Statement II alone is not sufficient to answer the question.

7. Answer: c)

Statement I: Swathi and Shivani started working to complete Job- B with their 20% and 25% less than the original efficiency respectively. The ratio of the number of days taken by Swathi and Shivani to complete Job-B is 3 : 4. The difference between their wages is Rs. 300

LCM of 25 and 30 = 150

Total work = 150 units

Swathi's work per day = 5 units

Swathi's 80% efficiency = 5 * 80/100 = 4 units

Shivani's work per day = 6 units

Shivani's 75% efficiency = 6 * 75/100 = 4.5 units

According to the question,

(3x * 4) + (4x*4.5) = 150

12x + 18x = 150

30x =150 => x =5

Number of days worked by Swathi and Shivani is 15 and 20 days respectively.

Swathi's 15 days work = 4 * 15 = 60 units

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Shivani's 20 days work = 20 * 4.5 = 90 units
Difference between the total units done Shivani and Swathi
= 90 – 60 = 30 units
Amount received to complete 30 units of total work = 300
Amount received to complete 150 units of total work =
(300/30)*150 = Rs. 1500
Statement II: Shivani started working to complete Job-B.
After 6 days swathi also joins with her and increased her
efficiency by 20%. Swathi left the work 5 days before the
work was completed and get Rs. 8400 as wage.
LCM of 25 and 30 = 150
Total work = 150 units
Shivani's work per day = 6 units
Swathi's work per day = 5 units
Swathi's 120% efficiency = 5 * 120/100 = 6 units
Total number of days worked by Shivani be x and Swathi be
(x - 11)
According to the question,
(x * 6) + ((x - 11)*6) = 150
6x + 6x - 66 =150
12x = 216
X = 18 days
Total work done by Shivani = 6 * 18 = 108 units
Total work done by Swathi = (18 - 11)*6 = 42 units
Amount received by Swathi to complete 42 units is 8400
Total amount to complete 150 units = (8400/42)*150 = Rs.
30000

8. Answer: B
Statement I: Shivani started working to complete Job-A and
after 5 days Janani joins with her. The ratio of the number of
days they worked to complete Job-A is 35: 12.
Here, there is no information about Janani's individual work.
From that we cannot answer the given question.
Statement II: Sumi is 25% more efficient than Swathi to
complete Job-A. They worked alternatively starting with
Sumi to complete Job-A.
Efficiency ratio of Sumi to Swathi = 125: 100 = 5: 4
Days ratio of Sumi to Swathi = 4: 5

Number of days taken by Sumi alone to complete the whole
work = (25/5) * 4
= 20 days
LCM of 25 and 20 = 100
Total work = 100 units
Swathi's work per day = 100/25 = 4 units
Sumi's work per day = 100/20 = 5 units
Work done by Swathi and Sumi 2 days = 9 units
Work done by Swathi and Sumi 22 days = 9*11= 99 units
Remaining = 100 – 99 = 1 unit
Required number of days = 22 + 1/5 = 22 (1/5) days

9. Answer: B
Statement I: Shivani and Krish started working to complete
Job-D and the ratio of the number of days worked by
Shivani to Krish is 5: 2.
Number of days worked by Shivani and Krish is 5x and 2x
respectively.
Here, there is no information about Krish's individual work.
From that we cannot answer the given question.
Statement II: Shivani and Krish completes the Job- B in
(375/88) days less than the total number of days taken by
Shivani and Swathi working together till the work
completed.
LCM of 30 and 25 = 150
Total work = 150 units
Swathi's per day work = 5 units
Shivani's per day work = 6 units
Total number of days taken by Swathi and Shivani to
complete the whole work
= 150/11 days
Total number of days taken by Shivani and Krish to
complete the whole work
= 150/11 - 375/88
= 825/88
Krish one day work = 88/875 – 1/25 = 11/165
Statement II alone is sufficient to answer the given question.

10. Answer: e)

Statement I: Shivani started working to complete Job-C and after 4 days, Janavi joins with him and after few days Janavi replaced by Kamali. The remaining work was completed in 5 days.

From question there is no information about Kamali and Janavi alone to complete the whole work.

Statement I alone is not sufficient to answer the given question.

Statement II: Janavi and Kamali started working together to complete Job-B and completed the work same as the number of days taken by Shivani and Swathi working together.

From question there is no information about Kamali and Janavi alone to complete the whole work.

Statement II alone is not sufficient to answer the given question.

Set 03 :

Direction: (11 - 15):

11. Answer: a)

Difference between distance travelled by C and F in percentage= 25-15= 10%

Distance travelled by car C= 160/10 * 25= 400 km

Time taken by car C= 400/80= 5 hours

Time taken car D = 5/20*10= 2.5 hours

Distance travelled by car D= 160/10*20= 320 km

Speed of car D= 320/2.5= 128 kmph

12. Answer: d)

Distance travelled by Car D = 20/100*1800= 360 km

Total time taken by all the cars = 2/4*100= 50 hours

(Difference between taken by car F and car E is given)

Time Taken by car D= 10/100* 50= 5 hours

Speed of car D = 360/5= 72 kmph

Distance travelled by car C= 1800 * (25/100) = 450 km

Time taken by car C = 20/100* 50= 10hours

Speed of car C = 450/ 10= 45 kmph

Required percentage= (72- 45)/45*100= 60% more

13. Answer: a)

Distance travelled by Car A= 1500 * (20/100) = 300 km

Time taken by car A= 300/80= 15/4 hours

Distance travelled by Car C = 25/100* 1500= 375 km

Time taken by car C= (15/4)/15* 20= 5 hours

Speed of car C= 375/5 = 75 kmph

14. Answer: c)

Distance travelled by car B = 10/100* 2000= 200 km

Distance travelled at 60 kmph= 3/5*200 = 120 km

Time taken= 120/60= 2 hours

Distance travelled at 20 kmph= 200- 120= 80 km

Time taken = 80/20= 4 hours

Total time taken = 2 + 4 = 6 hours

15. Answer: e)

Let the distance travelled by all the cars = x km

Distance travelled by car C= 25/100* x= x/4

Time taken car C= 20/100*40= 8 hours

Speed of car C = (x/4)/8 = x/32

Distance travelled by car A = 20/100* x= x/5

Time taken by car A = 15/100* 40= 6 hours

Speed of car A= (x/5)/6= x/30

Difference between speed of Car A and C = 5

(x/30) – (x/32) = 5

(16x- 15x)/480= 5

x= 2400 km

So, distance travelled by car F= 15/100* 2400= 360 km

Set 04 :

Direction: (16 - 20):

Total number of balls in bag A = x

Total number of balls in bag B = y

Probability percentage of drawing a red colour ball from bag A

= 3/20 * 100

= 15%

Probability percentage of drawing a violet colour ball from bag A

= 100% - (20% + 30% + 25% + 15%)

Red	6	8
Violet	4	10
Total	40	60

= 100% - 90%

= 10%

Ratio of the number of Brown, Green, Black, Red and Violet colour balls in bag A,

= 20: 30: 25: 15: 10

= 4: 6: 5: 3: 2

Number of violet colour balls in bag A = 2/(20) * Total number of balls in bag A

4 = 2/20 * x

=> x = 40 balls

Probability percentage of drawing a violet colour ball from bag B

= 1/6 * 100

= 50/3 %

Probability percentage of drawing a red colour ball from bag B

= 100% - (20% + 25% + 25% + 50/3%)

= [300% - (60%+75%+75%+50%)]/3

= (300% - 260%)/3

= 40/3 %

Ratio of the number of Brown, Green, Black, Red and Violet colour balls in bag B,

= 20: 25: 25: 40/3: 50/3

= 60: 75: 75: 40: 50

= 12: 15: 15: 8: 10

Number of red colour balls in bag B = 8/(60) * Total number of balls in bag B

8 = 8/60 * y

=> y = 8 * 60/8

=> y = 60 balls

Balls	A	B
Brown	8	12
Green	12	15
Black	10	15

16. Answer: b)

Number of black balls in bag A = 10 + x

Total number of balls in bag A = 40 + x

Probability of drawing a black ball from bag A = $(10+x)C_1 / (40+x)C_1 = 1/3$

$(10+x) / (40+x) = 1/3$

$30 + 3x = 40 + x$

=> $2x = 10$ => $x = 5$

Total number of balls in bag B after taking 5 black balls

= 60 – 5 = 55

Required probability = $15C_1/55C_1$

= 15/55 = 3/11

17. Answer: d)

Probability of getting a brown ball from bag A = $8C_1/40C_1$

= 8/40 = 1/5

Probability of getting a violet ball from bag B = $10C_1/60C_1$

= 10/60 = 1/6

Required probability = 1/5 * 1/6 = 1/30

18. Answer: a)

Probability of getting a red ball from bag A = $6C_1/40C_1$

= 6/40 = 3/20

Probability of getting a brown ball from bag B = $12C_1/60C_1$

= 12/60 = 1/5

Required percentage = (3/20)/(1/5) *100

= 3/20 * 5 * 100

= 75%

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19. Answer: c)
Probability of drawing two violet colour balls from bag B
$= 10C_2/60C_2$
Probability of drawing two violet colour balls from bag A
$= 4C_2/40C_2$
Required ratio $= 10C_2/60C_2 : 4C_2/40C_2$
$= (10*9)/(60*59) : (4*3)/(40*39)$
$= (3*5*13) : (59)$
$= 195 : 59$

20. Answer: e)
Number of black colour balls in bag B $= 15 + x$
Number of green colour balls in bag B $= 15 + 2x$
Total number of balls in bag B $= 60 + 3x$
Probability of selecting a green colour ball from bag B $= 1/3$
$=> (15+2x)C_1/(60+3x)C_1 = 1/3$
$(15 + 2x)/(60 + 3x) = 1/3$
$45 + 6x = 60 + 3x$
$=> 3x = 15$
$=> x = 5$

Set 05 :
Direction: (21 - 25):
21. Answer: c)
Quantity of milk in the remaining mixture A $= 7/12$ x 60 = 35 litres
Quantity of water in the remaining mixture A $= 5/12$ x 60 = 25 litres
Let, the amount of milk added to the remaining mixture A = n litres
$(35 + n)/(25 + 5) = 3/2$
$=> 2$ x $(35 + n) = 3$ x 30
$=> 70 + 2n = 90$
$=> 2n = 90 - 70$

$=> 2n = 20$
$=> n = 20/2$
$=> n = 10$ litres
Quantity of milk in the final mixture A $= 35 + 10 = 45$ litres
Quantity of milk in the remaining mixture B $= 5/9$ x 81 = 45 litres
Quantity of water in the remaining mixture B $= 4/9$ x 81 = 36 litres
Let the amount of water added to the remaining mixture B = k litres
$(45 + 5)/(36 + k) = 5/4$
$=> 4$ x $50 = 5$ x $(36 + k)$
$=> 200 = 180 + 5k$
$=> 5k = 200 - 180$
$=> 5k = 20$
$=> k = 4$ litres
Quantity of water in the final mixture B $= 36 + 4 = 40$ litres
Required percentage $= 45/40$ x $100 = 112.5\%$

22. Answer: c)
Remaining mixture C $= 96 - 24 = 72$ litres
Quantity of milk in the remaining mixture C $= 5/8$ x 72 = 45 litres
Quantity of water in the remaining mixture C $= 3/8$ x 72 = 27 litres
Let the amount of milk added to the remaining mixture = l litres
$(45 + l)/(27 + 3) = 2/1$
$=> 45 + l = 2$ x 30
$=> l = 60 - 45$
$=> l = 15$ litres
Quantity of milk in the final mixture C $= 45 + 15 = 60$ litres
Remaining mixture D $= 78 - 39 = 39$ litres
Quantity of milk in the remaining mixture D $= 7/13$ x 39 = 21 litres
Quantity of water in the remaining mixture D $= 6/13$ x 39 = 18 litres
Let, the amount of water added to the remaining mixture D = m litres
$(21 + 9)/(18 + m) = 3/2$

=> 2 x 30 = 3 x (18 + m)
=> 60 = 54 + 3m
=> 3m = 60 – 54
=> 3m = 6
=> m = 2
Amount of water in the final mixture D = 18 + 2 = 20 litres
Required ratio = 60: 20 = 3:1

23. Answer: b)
Amount of milk in the remaining mixture E = 4/7 x 28 = 16 litres
Amount of water in the remaining mixture E = 3/7 x 28 = 12 litres
Let the amount of milk added to the remaining mixture E = p litres
(16 + p)/(12 + 8) = 3/2
=> 2 x (16 + p) = 20 x 3
=> 32 + 2p = 60
=> 2p = 60 – 32
=> 2p = 28
=> p = 28/2
=> p = 14 litres
Amount of milk in the final mixture E = 16 + 14 = 30 litres
Amount of water in the final mixture E = 12 + 8 = 20 litres
Total amount of final mixture E = 30 + 20 = 50 litres
Amount of milk in mixture H = 30 x 120/100 = 36 litres
Amount of water in mixture H = 20 x 140/100 = 28 litres
Total amount of mixture H = 36 + 28 = 64 litres
Required difference = 64 – 50 = 14 litres

24. Answer: c)
Quantity of milk in the remaining mixture A = 7/12 x 60 = 35 litres
Quantity of water in the remaining mixture A = 5/12 x 60 = 25 litres
Let, the amount of milk added to the remaining mixture A = n litres
(35 + n)/(25 + 5) = 3/2
=> 2 x (35 + n) = 3 x 30
=> 70 + 2n = 90

=> 2n = 90 – 70
=> 2n = 20
=> n = 20/2
=> n = 10 litres
Quantity of milk in the final mixture A = 35 + 10 = 45 litres
Quantity of milk in the remaining mixture B = 5/9 x 81 = 45 litres
Quantity of milk in the final mixture B = 45 + 5 = 50 litres
Remaining mixture C = 96 – 24 = 72 litres
Quantity of milk in the remaining mixture C = 5/8 x 72 = 45 litres
Quantity of water in the remaining mixture C = 3/8 x 72 = 27 litres
Let the amount of milk added to the remaining mixture = l litres
(45 + l)/(27 + 3) = 2/1
=> 45 + l = 2 x 30
=> l = 60 – 45
=> l = 15 litres
Quantity of milk in the final mixture C = 45 + 15 = 60 litres
Remaining mixture D = 78 – 39 = 39 litres
Quantity of milk in the remaining mixture D = 7/13 x 39 = 21 litres
Quantity of milk in the final mixture D = 21 + 9 = 30 litres
Quantity of milk in the remaining mixture E = 4/7 x 28 = 16 litres
Quantity of water in the remaining mixture E = 3/7 x 28 = 12 litres
Let the amount of milk added to the remaining mixture E = p litres
(16 + p)/(12 + 8) = 3/2
=> 2 x (16 + p) = 20 x 3
=> 32 + 2p = 60
=> 2p = 60 – 32
=> 2p = 28
=> p = 28/2
=> p = 14 litres
Quantity of milk in the final mixture E = 16 + 14 = 30 litres
Quantity of milk in the remaining mixture F = 15/31 x 93 = 45 litres

Quantity of milk in the final mixture F = 45 + 5 = 50 litres
Remaining mixture G = 136 – 34 = 102 litres
Quantity of milk in the remaining mixture G = 9/17 x 102 = 54 litres
Quantity of water in the remaining mixture G = 8/17 x 102 = 48 litres
Let the amount of milk added to remaining mixture G = y litres
(54 + y)/(48 + 2) = 6/5
=> (54 + y)/50 = 6/5
=> 5 x (54 + y) = 300
=> 270 + 5y = 300
=> 5y = 30
=> y = 6
Quantity of milk in the final mixture G = 54 + 6 = 60 litres
Required sum = 45 + 50 + 60 + 30 + 30 + 50 + 60 = 325 litres

25. Answer: b)
Remaining mixture G = 136 – 34 = 102 litres
Quantity of milk in the remaining mixture G = 9/17 x 102 = 54 litres
Quantity of water in the remaining mixture G = 8/17 x 102 = 48 litres
Let the amount of milk added to remaining mixture G = y litres
(54 + y)/(48 + 2) = 6/5
=> (54 + y)/50 = 6/5
=> 5 x (54 + y) = 300
=> 270 + 5y = 300
=> 5y = 30
=> y = 6
Quantity of milk in the final mixture G = 54 + 6 = 60 litres
Quantity of milk in mixture K = 60 x 125/100 = 75 litres
Quantity of water in the remaining mixture C = 3/8 x 72 = 27 litres
Quantity of water in the final mixture C = 27 + 3 = 30 litres
Quantity of water in mixture K = 30 x 90/100 = 27 litres
Total quantity of mixture K = 75 + 27 = 102 litres
Milk: water = 75:27 = 25:9

Remaining quantity of mixture K = 102 – 34 = 68 litres
Quantity of milk in the remaining mixture K = 25/34 x 68 = 50 litres
Quantity of water in the remaining mixture K = 9/34 x 68 = 18 litres
Quantity of milk in the final mixture K = 50 + 10 = 60 litres
Quantity of water in the final mixture K = 18 + 12 = 30 litres
Required difference = 60 – 30 = 30 litres

Set 06 :
Direction: (26 - 30):
26. Answer: C
Let the number of hours that pipe B was opened on Thursday be x.
Then total time for which pipe A was opened on Monday= (5+x) hours
Volume of water filled by pipe A on Monday=15/100*1000= 150 litres
Then, Pipe A's rate on Monday= 150/(5+x)
Similarly, Volume of water filled by pipe B on Thursday=8/100*500= 40 litres
Then, Pipe B's rate on Thursday= 40/x
Thus, according to the question,
[150/(5+x)] = 40/x
150x= 200+40x
x= 20/11 hours

27. Answer: A
Volume of water filled by pipe A on Thursday=10/100*1000= 100 litres
Then, Pipe A's rate on Thursday= 100/8= 12.5 litres per hour
Volume of water filled by pipe B on Saturday=12/100*500= 60 litres
Then, Pipe B's rate on Saturday= 60/6= 10 litres per hour

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125

Then total rate of filling the tank= (12.5+ 10) = 22.5 litres per hour.

Total volume filled in 2 hours by both the pipes together= 22.5*2= 45 litres

Required percentage= 45/2700*100= 1.7%

28. Answer: D

Volume of water filled by pipe A on Friday=15/100*1000= 150 litres

Then, Pipe A's rate on Friday= 150/10= 15 litres per hour

And, Volume of water filled by pipe B on Friday=20/100*500= 100 litres

Then, Pipe B's rate on Friday= 100/5= 20 litres per hour

Required difference= 20-15= 5 hours

29. Answer: B

Volume of water filled by pipe A on Wednesday=12/100*1000= 120 litres

Then, Pipe A's rate on Wednesday= 120/8 = 15 litres per hour

And Volume of water filled by pipe B on Wednesday=25/100*500= 125 litres

Then, Pipe B's rate on Wednesday= 125/5= 25 litres per hour

Since, both pipes are opened simultaneously on Wednesday,

Total rate of filling=15+25= 40 litres per hour

Thus time taken by both pipes to fill 200 litres= 200/40= 5 hours

30. Answer: A

Volume of water filled by pipe A on Tuesday=18/100*1000= 180 litres

Then, Pipe A's rate on Tuesday= 180/5= 36 litres per hour

Similarly, Volume of water filled by pipe B on Saturday=12/100*500= 60 litres

Then, Pipe B's rate on Saturday= 60/6= 10 litres per hour

Then required ratio= 36:10

=18:5

Set 07 :

Direction: (31 - 35):

31. Answer: A

Quantity I:

Selling price of item 1 in shop D = 7000 * [(100 - 10)/100]

= > 7000*(90/100) = Rs. 6300

Marked price of item 1 in shop E = [6300/(100-30)]*100

= > 6300/70 * 100 = 9000

Marked price of item 4 in shop E = 9000 * (14/15) = 8400

Selling price of item 4 in shop E = 8400 * [(100-20)/100]

= > 8400 * 80/100 = Rs. 6720

Quantity II:

Profit of item 2 in shop C = Rs. 280 = 10% of cost price of item 2 in shop C

Cost price of item 2 in shop C = 280*(100/10) = 2800

Marked price of item 2 in shop C = 2800 * [(100 + 25)/100]

= > 2800 * 125/100 = 3500

Selling price of item 2 in shop C = 3500 * (100 - 12)/100

= > 3500 * (88/100) = Rs. 3080

Marked price of item 2 in shop D = 3080 * (100/(100-30))

= > (3080/70)*100= 4400

Cost price of item 2 in shop D = (4400/110)*100 = Rs. 4000

Quantity I > Quantity II

32. Answer: C

Quantity I:

Marked price of item 3 in shop B = 4800 * (140/100) = 6720

Marked price of item 3 in shop D =4800*(150/100) = 7200

Marked price of item 3 in shop E =4800* (125/100) = 6000

Selling price of item 3 in shop B = 6720 * [(100-16)/100] = 5644.8

Selling price of item 3 in shop D = 7200 * [(100-20)/100] =5760

Selling price of item 3 in shop E = 6000 * [(100-10)/100] = 5400

Required total = (5644.8 + 5760 + 5400) = Rs. 16804.4

Quantity II:

Marked price of item 4 in shop A = 9520 * (100/70) = 13600

Marked price of item 4 in shop C = 9520 *(100/85) = 11200

Marked price of item 4 in shop E = 9520 * (100/80) = 11900

Required total = (13600+11200+11900) = Rs. 36700

Quantity I < Quantity II

33. Answer: C

Quantity I:

Cost price of item 4 in shop E = x

Cost price of item 1 in shop E = x+800

Marked price of item 1 in shop E = (x+800) * [(100+60)/100]

=> (x + 800)*(160/100) = (x + 800)*(8/5) = (8x + 6400)/5

Marked price of item 4 in shop E = x * (100 + 80)/100

= > (x)*(180/100)

Selling price of item 1 in shop E = (2x+1600) * [(100-30)/100]

= > [(8x + 6400)/5] * 70/100

= > [(8x + 6400)/5]*(7/10)

Selling price of item 4 in shop E = (x) * (180/100) * [(100-20)/100]

= > (x) * (180/100) * (4/5)

= > 36x/25

According to the question,

Selling price of both the items is same

[(8x + 6400)/5]*(7/10) = 36x/25

56x + (6400*7) = 72x

16x = (6400*7)

X = 2800

Selling price of item 4 in shop E = 36x/25 = (36/25)*2800 = Rs. 4032

Quantity II:

Cost price of item 3 in shop B = 6000

Marked price of item 3 in shop B = 6000 * 120/100 = 7200

Selling price of item 3 in shop B = 7200 * [(100-16)/100]

= > 7200*(84/100) = 6048

Marked price of item 3 in shop D = 6048 * (100/80) = Rs. 7560

Quantity I < Quantity II

34. Answer: C

In shop D, if the ratio of marked price in item 1, item 2 and item 3 is 56: 72: 63 and the marked price of item 1 in shop B is Rs. 6300.

Selling price of item 1 in shop B = 6300 * (100-20)/100 => 6300 * 80/100 = 5040

Marked price of item 1 in shop D = 5040 *(100/100-10)

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=> 5040 * 100/90 = 5600

Marked price of item 2 in shop D = 5040 * (100/100-30)

= > 5040 *(100/70) = 7200

Marked price of item 3 in shop D = 5040 * (100/100-20)

= > 5040 * (100/80) = 6300

Quantity I:

Selling price of item 2 in shop D = 7200 * [(100 - 30)/100]

=> 7200 * (70/100) = 5040

Marked price of item 2 in shop A = 5040 * (100/85) = Rs. 5929.4

Quantity II:

Selling price of item 3 in shop D = 6300 * (100-20)/100

= > 6300 * (80/100) = 5040

Marked price of item 3 in shop E = 5040 * (100/90) = Rs. 5600

Quantity I < Quantity II

35. Answer: A

Quantity I:

Selling price of item 4 in shop E = 6300 * (100 - 20)/100

= > 6300 * 80/100 = 5040

Marked price of item 4 in shop A = 5040 * (100/70) = Rs. 7200

Quantity II:

Selling price of item 2 in shop D = 4400 * (100-30)/100

=> 4400 * 70/100 = 3080

Marked price of item 2 in shop C = 3080 * (100/88) = Rs. 3500

Quantity I > Quantity II

Set 08 :

Directions (36 - 40):

Crop	When grown singly (In tons)	When grown along with another crop (In tons)	No of sectors when grown singly	No of sectors when grown along with another crop	Total production (In tons)
Wheat	120	80	6	4	1040
Maize	80	60	12	6	1320
Corn	100	72	15	9	2148
Rice	150	96	18	7	3372

36. Answer: c)

Required percentage = [(3372 - 1040)/3372]*100 = 69 % less

37. Answer: c)

50% of the area cultivated with only rice = 18 * 50/100 = 9 sectors

No of sectors cultivated only rice = 9 sectors

No of sectors cultivated rice along with another crop = 9 + 7 = 16 sectors

Total production = (9*150) + (16*96) = 2886 tons

No of sectors cultivated only Wheat = 6 sectors

No of sectors cultivated wheat along with another crop = 4 + 9 = 13 sectors

Total production = (6*120) + (13*80) = 1760

Required ratio = 2886: 1760 = 1443: 880

38. Answer: c)

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Total cost price of corn = (1200*2148) = 25.776 lakhs
Total cost price of Maize = (1540*1320) = 20.328 lakhs
Quantity I:
Total selling price = 25.776 lakhs * (115/100) = 29.6424 lakhs
Quantity II:
Total selling price = 20.328 * (125/100) = 25.41 lakhs
Quantity I > Quantity II

39. Answer: d)
Total Wheat production = 80 * 4 = 320 tons
Total Maize production = 60 * 6 = 360 tons
Total Corn production = 72 * 9 = 648 tons
Total Rice production = 96 * 7 = 672 tons
Wheat crop recorded lowest production when grown along with another crop.

40. Answer: b)
In the year 2016:
Total Wheat production = 1040 * 160/100 = 1664 tons
Total Corn production = 1320 * 140/100 = 1848 tons
Total Rice production = 2148 * 125/100 = 2685 tons
Total Maize production = 3372 * 150/100 = 5058 tons
Total production in the year 2016 = (1664 + 1848 + 2685 + 5058) tons
= 11255 tons

Set 9 :
Direction: (41 -4 5):
41) Answer: c)
Speed of train B = 72 km/hr
Speed of train E = 90 km/hr
Distance covered by train B at 11.00 am = 2 * 72 = 144 km
Total distance covered by train B and train E at 1.30 pm

= (72+90) * (11.00 am – 1.30 pm)
= 162 * (2 hours 30 minutes)
= 162 * (2.5)
= 405 km
Total distance between X and Y = 144 + 405 = 549 km
Owing to a signal problem arising at 12 noon,
Distance covered by Train B and Train E at 12 noon
= 2* 72 + (72+90)
= 144 + 162 = 306
Remaining distance = 549 – 306
= 243 km
If 243 km distance covered by two trains at 4.30 pm
Total time = (4.30 pm – 12 noon) = 4 hours 30 minutes
New speed = 243/(4.5) = 54 km/hr
Train B and Train E reduced same quantity of speed,
Let us take the reduced speed be x
(72 -x) + (90 - x) = 54
162 – 2x = 54
162 – 54 = 2x
108 = 2x
X = 108/2 = 54 km/hr
New speed of train B = 72 – 54 = 18 km/hr

42) Answer: d)
Speed of train A = 45 km/hr = 45 * 5/18 = 12.5 m/s
Speed of motor bike = 70 km/hr = 70 * 5/18 m/s
Time taken by motor bike to reach at the mid-point of the train
= 150/(45*5/18 – 70 * 5/18)
= 150 * 18/5 * (1/25)
= 21.6 sec
New speed of train = 60 * 5/18
New speed of bike = 65 * 5/18
 Time taken by motor bike to reach remaining 150 m
= 150/[(65 - 60)*5/18]
= 150/5 * 18/5
= 108 sec

Total distance will the motorbike travel while passing the train completely
= 21.6* 70*5/18 + 108 * 65 * 5/18
= 420 + 1950
= 2370 m
= 2.37 km

43) Answer: b)
Let us take the speed of train C be x km/hr
According to the question,
18/(4x/5) – 18/x = (45 - 36)/60
(18*5)/4x – 18/x = 9/60
90/4x – 72/4x = 9/60
18/4x = 3/20
=> x = 30 km/hr
Required percentage = 30/90 * 100
= 1/3*100
= 100/3 %

44) Answer: c)
Let us take the speed of train D be x km/hr and the speed of train F be (x+15) km/hr
Distance covered by train D and train F is 540 km each
Time taken by train D = 540/x
Time taken by train F = 540/(x+15)
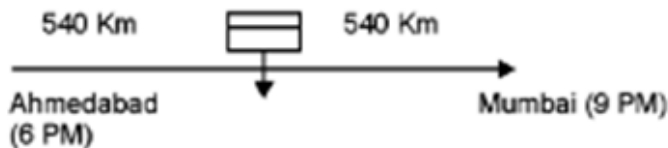
From I,
Speed of train D = 400/32 = 12.5 sec = 12.5 * 18/5
= 45 km/hr
Time taken by train D to cover 540 km
= 540/45 = 12 hours
Train D and train F will meet (6 pm + 12 hours) = 6 am
Statement I alone is sufficient to answer the question.

From II,
Speed of train F = 600/36 = 50/3 m/s = 50/3 * 18/5
= 60 km/hr
Time taken by train F to cover 540 km
= 540/60 = 9 hours
Train F and train D will meet after (9 pm + 9 hours) = 6 am
Statement II alone is sufficient to answer the question.
From I and II, either of the statement is sufficient to answer the question.

45) Answer: b)
Quantity I: If 4.5 km length of the train D crosses a pole in 6 minutes, then find the speed of the train D
Speed of the train D = 4.5/(6/60)
= 4.5 * 60/6 = 45 km/hr
Quantity II: If 6 km length of the train F crosses a pole in 6 minutes, then find the speed of the train F
Speed of the train F = 6/(6/60)
= 6 *60/6 = 60 km/hr
Quantity I < Quantity II

Set 10 :
Directions (46 - 50):

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Items name	After exchange						Total
	Pen	Pencil	Eraser	Scale	Note	Sharpener	
Pen	—	7	x	(12-x)	12	9	40
Pencil	z	—	3	7	(19-z)	9	38
Eraser	4	w	—	(26-w)	9	11	50
Scale	8	7	9	—	(12+z)	(24-z)	60
Note	7	6	(20-x)	(15+x)	—	20	68
Sharpener	(21-z)	(18-w)	18	w	16	—	65
Total	40	38	50	60	68	65	321

(Before exchange)

46. Answer: d)
From the above table, out of the students that originally had Pen, the number of students now having Scale is '12 – x'. Maximum possible value of x is 11.
Therefore minimum possible value of 12 – x
= 12 – 11= 1

47. Answer: c)
From the above table, out of the students that originally had Pen, the number of students now having Scale is 8
= (12-x)
8 = 12 –x
=> x = 4
Out of the students that originally had Pen, the number of students now having Eraser is 4.

48. Answer: b)
Among the students that originally had Note, the number of students now having Scale is a

Among the students that originally had Note, the number of students now having Eraser is b
From the above table, among the students that originally had Note, the total number of students now having Eraser and Scale is
(68 - 35) = 33 = (a + b) --- (1)
=> (b - a) = 1 ---- (2)
Solve the above equation (1) and (2), we get
=> a = 34/2 = 17
=> b = 16
Required difference = 20 – 17 = 3

49. Answer: a)
Among the students that originally had Sharpener, the number of students now having Eraser is 18
Among the students that originally had Sharpener, the number of students now having Pen be (18/2) = 9
Among the students that originally had Sharpener, the number of students now having Scale = 9 + 1 = 10

50. Answer: b)
From the above table,
Among the students that originally had Pencil, the number of students now having Note = among the students that originally had Pencil, the number of students now having Scale = 7
Among the students that originally had Pencil, the number of students now having Pen = 38 – (3+7+9+7)
= 38 – 26 = 12 = z
Among the students that originally had Sharpener, the number of students now having pen = (21 - z)
= 21 – 12 = 9

Set 11 :
Directions (51 - 55):

yea	Company A (In lakhs)	Company B (In lakhs)

rs	Expenditure	Income	Profit	Expenditure	Income	Profit
2012	120	144	24	144	201.6	57.6
2013	80	104	24	100	120	20
2014	100	125	25	125	162.5	37.5
2015	75	86.25	11.25	100	124	24
2016	150	165	15	100	132	32
2017	200	248	48	300	375	75

51. Answer: c)
Quantity I: In 2018, total income of company A and B is 500 lakhs and the expenditure of both companies is equal. Profit of company B is 20 lakhs more than the profit of company A and the profit percentage of company A is 20%. Company A's profit is what percentage less than the company B's profit?
Let us take income of company A in the year 2018 be x lakhs
Income of company B in the year 2018 be (x+20) lakhs
Total income of company A and B in the year 2018 = 500 lakhs
X+x+20= 500
2x = 500 - 20 => 480
= > x = 240 lakhs
Income of company A in the year 2018 = 120% of Expenditure of company A in the year 2018
240 = 120/100 * Expenditure of company A in the year 2018
Expenditure of company A in the year 2018 = (240/120)*100 = 200 lakhs

Company A's profit = 240 – 200 = 40 lakhs
Company B's income = 260 lakhs
Company B's expenditure = 260 – (40+20)
= 260 – 60 = 200 lakhs
Required percentage = [(60 - 40)/60] * 100
= > (20/60) * 100 = 33 (1/3) %
Quantity II: Total income of company A and B in the year 2014 is approximately what percentage more/less than the total income of company A and B together in the year 2016?
Total income of company A and B in the year 2014 = (125 + 162.5) = 287.5 lakhs
Total income of company A and B in the year 2016 = (165 + 132) = 297 lakhs
Required percentage = [(297 – 287.5)/297] * 100 = 3.19 %
Quantity III: Total expenditure of company B in the year 2013 and 2014 together is what percentage more/less than the total expenditure of company A in the year 2012 and 2014 together?
Total expenditure of company B in the year 2012 and 2014 = (100 +125)
= 225 lakhs
Total expenditure of company A in the year 2012 and 2014 = (120+100)
= 220 lakhs
Required percentage = [(225 - 220)/220] * 100
= 2.27%
Quantity I > Quantity II > Quantity III

52. Answer: b)
Quantity I: Find the difference of total income of company A in the year 2015, 2016 and 2017 together to that of total expenditure of company B in the year 2012, 2013 and 2014 together?
Total income of company A in the year 2015, 2016 and 2017

= 75*(115/100) + 150*(110/100) + 200*(124/100)

= (86.25 + 165 + 248)

= 499.25 lakhs

Total expenditure of company B in the year 2012, 2013 and 2014

= (144 + 100 + 125)

= 369 lakhs

Required difference = 499.25 – 369 = 130.25 lakhs

Quantity II: What is the average income of company B in the year 2014 and 2015 together?

Total income of company B in the year 2014 and 2015

= (162.5 + 124) = 286.5

Required average = (286.5/2) = 143.25 lakhs

Quantity III: In 2012, total expenditure of company A is 20% more than the previous year. The income of company A in the year 2013 is 20% less than the income of company A in the year 2011. Find the profit of company A in the year 2011?

Expenditure of company A in the year 2012 = (120/100)*Expenditure of company B in the year 2011

120 = (120/100)*Expenditure of company A in the year 2011

Expenditure of company A in the year 2011 = (120/120)*100 = 100 lakhs

Income of company A in the year 2013 = (80/100)*Income of company A in the year 2011

104 = (80/100)*Income of company B in the year 2011

Income of company B in the year 2011 = (104/80)*100 = 130 lakhs

Profit of company B in the year 2011 = 130 – 100 = 30 lakhs

Quantity I < Quantity II > Quantity III

53.Answer: e)

Quantity I: In 2015, if the expenditure of company A is decreased by 25% and the income of company A is increased by 30%. Find the new profit percentage of company A?

Expenditure of company A in the year 2015 after decrement = 75*(75/100)

= 56.25 lakhs

Income of company A in the year 2015 after increment = 86.25*(130/100)

= 112.125 lakhs

Required percentage = [(112.125 - 56.25)/56.25] * 100 = 99.33%

Quantity II: In 2016, if the income of company B is decreased by 20% and the profit is decreased by (x) %. Find the value of x, if the expenditure is same.

Income of company B in the year 2016 after decrement = 132 * 80/100

= 105.6 lakhs

Expenditure of company B in the year 2016 = 100 lakhs

Profit = 105.6 – 100 = 5.6 lakhs

Percentage of profit decreased = [(32 - 5.6)/32]*100 = 82.5 %

Quantity III: Total income of company B in the year 2013 is what percentage more/less than the total expenditure of company A in the same year?

Required percentage = [(120 - 80)/80]*100

= (40/80)*100 = 50%

Quantity I > Quantity II > quantity III

54. Answer: b)

Quantity I: In Company A, expenditure in the year 2012, 2014 and 2016 is increased by x %, (x+10) % and (x+15) % respectively. Find the new income of company A in the year 2012, 2014 and 2016 together, if the total expenditure of company A in the year 2012, 2014 and 2016 together after increment is 439.5 lakhs and the profit percentage is same as previous?

Expenditure of company A in the year 2012, 2014 and 2016 after increment
= 439.5 lakhs
120 * (100+x)/100 + 100 * (100+x+10)/100 + 150 * (100+x+15)/100 = 439.5
120 * (100+x) + 100 * (110+x)+150 * (115+x) = 43950
12000 + 120x + 11000 + 100x + 17250 + 150x = 43950
370x = 43950 – 17250 – 11000 – 12000
370x = 3700
=> x= 3700/370 = 10%
Expenditure of company A in the year 2012 after increment = 120 * 110/100
= 132 lakhs
Income of company A in the year 2012 after increment = 132 * 120/100
= 158.4 lakhs
Expenditure of company A in the year 2014 after increment = 100*120/100
= 120 lakhs
Income of company A in the year 2014 after increment = 120 * 125/100
= 150 lakhs
Expenditure of company A in the year 2016 after increment = 150 * 125/100
= 187.5 lakhs
Income of company A in the year 2016 after increment = 187.5 * 110/100
= 206.25 lakhs
Required total income of company A in the year 2012, 2014 and 2016
= (158.4 + 150 + 206.25) = 514.65 lakhs
Quantity II: In Company B, the income in the year 2013, 2015 and 2017 is decreased by 20%, 24% and 32% respectively. Find the new expenditure in the year 2013, 2015 and 2017 together if the profit percentage is same as previous?

Income of company B in the year 2013 after decrement = 120* 80/100
= 96 lakhs
Expenditure of company B in the year 2013 after decrement = 96*100/120
= 80 lakhs
Income of company B in the year 2015 after decrement = 124 * 76/100
= 94.24 lakhs
Expenditure of company B in the year 2015 after decrement = 94.24*100/124
= 76 lakhs
Income of company B in the year 2017 after decrement = 375 * 68/100
= 255 lakhs
Expenditure of company B in the year 2017 after decrement = 255 * 100/125
= 204 lakhs
Required total = 80 + 76 + 204 = 360 lakhs
Quantity III: Find the total income of company B in the year 2014, 2015 and 2016 together?
Required total income = 162.5 + 124 + 132 = 418.5 lakhs
Quantity I > Quantity II < Quantity III

55. Answer: d)
Quantity I: Find the sum of the third highest and lowest income of company A in the given years?
Required sum = 144 + 86.25 = 230.25 lakhs
Quantity II: Find the sum of the second highest and second lowest expenditure of company B in the given years?
Required sum =144 + 100 = 244 lakhs
Quantity III: Find the sum of the highest and second highest profit of company A in the given years?
Required sum = 48 + 25 = 73 lakhs
Quantity I < Quantity III > Quantity II

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Set 12:

Directions (56-60):

Bag P:

Number of pink colour caps is 15 which is 150% of the number of green colour caps. Number of black colour caps is 80% of pink colour caps. One cap is taken and the probability of getting a pink colour cap is 1/3.

Number of pink colour caps = 15

Number of green colour caps = $(15/150) * 100 = 10$

Number of black colour caps = $(80/100) * 15 = 12$

Let us take the number of red colour caps be x,

Total caps in bag P = $15+10+12+x = 37 + x$

Probability of one pink cap = $15C_1/(37+x)C_1 = 1/3$

$15/(37 + x) = 1/3$

$45 = 37 + x$

$=> x = 45 – 37 = 8$

Total = 45

Number of black, pink, green and red colour caps is 12, 15, 8 and 10 respectively

Bag Q:

The ratio of the number of black colour caps to the pink is 5: 6. The ratio of the number of pink colour caps to red is 4: 5. The ratio of the number of red colour caps to green is 3: 1. Two caps are taken and the probability of getting one pink and one red colour caps is 120/581.

Ratio of number of black, pink, red and green colour caps

Black	:	Pink	:	Red	:	Green
5	:	6	:	6	:	6
4	:	4	:	5	:	5
3	:	3	:	3	:	1

(5*4*3): (6*4*3): (6*5*3) : (6*5*1)

Ratio of number of black, pink, red and green colour caps

= 60: 72: 90: 30

= 20: 24: 30: 10

= 10: 12: 15: 5

Probability of one pink and one red colour caps

= $15xC_1 *12xC_1 /(10x+12x+15x+5x)C_2 = 120/581$

$=> [(15x*12x)*2]/(42x*(42x-1)) = 120/581$

$=> x/(14*(42x-1)) = 1/581$

$=> 581x = 588x – 14$

$=> 7x = 14$

$=> x = 2$

Number of black, pink, red and green colour caps is 20, 24, 30 and 10 respectively.

Total = 84

Bag R:

Total number of caps is 35 more than the total number of caps in bag P. Total number of pink and red colour caps is 50% of the total number of caps. Number of pink colour cap is 150 percentage of the number of red colour caps. The number of green colour caps is 60% of the number of black colour caps.

Total = $35 + 45 = 80$ caps

Number of pink and red colour caps = $(50/100) * 80$ = 40 caps

Number of pink colour caps = $(150/100) *$ Number of red colour caps

Ratio of pink to red colour caps = 3: 2

Number of pink colour caps = $40*(3/5) = 24$

Number of red colour caps = $40*(2/5) = 16$

Number of black and green colour caps = $(50/100) * 80$ = 40 caps

Number of green colour caps = $(60/100)*$Number of black colour caps

Ratio of green to black colour caps = 3: 5

Number of green colour caps = $40*(3/8) = 15$

Number of black colour caps = $40*(5/8) = 25$

Number of black, pink, green and red colour caps is 25, 24, 15 and 16 respectively

Bag S:

Number of pink colour caps is equal to the number of red colour caps and 5 caps less than the number of green colour caps. Total number of caps in the bag is 5 more than bag P. one cap is taken and the probability of getting a black colour cap is 3/10.

Total = 45 + 5 = 50 caps

Number of green colour caps = x

Number of pink colour caps = Number of red colour caps = x – 5

Number of black colour caps = y

Probability of getting a black colour cap = $yC_1/50C_1$ = 3/10

y/50 = 3/10

y = 15

Remaining = 50 – 15 = 35

=> x + (x -5) + (x -5) = 35

3x = 45

=> x = 15

Number of pink, black, green and red colour caps is 10, 15, 15 and 10 respectively.

Bag T:

Total number of caps in the bag is 66 (2/3)% of the total number of caps in the bag P. Number of black colour caps is one-sixth of the total number of caps and is equal to the number of red colour caps. One ball is taken and the probability of getting a green colour caps is 1/3.

Total = 66 (2/3)% of Total caps in bag P

= 200/300 * 45

= 2/3*45 = 30 caps

Number of black colour caps = 30 * (1/6) = 5 = Number of red colour caps

Number of green colour caps = x

Probability of getting a green colour cap = $xC_1/30C_1$ = 1/3

=> x/30 = 1/3

=> x = 10 caps

Number of pink colour caps = 30 – 10- 5 - 5 = 30 – 20 = 10 caps

Number of black, pink, green and red colour caps is 5, 10, 10 and 5 respectively

Bags	Black	Green	Red	Pink	Total
P	12	10	8	15	45
Q	20	24	30	10	84
R	25	15	16	24	80
S	15	15	10	10	50
T	5	10	5	10	30
Total	77	74	69	69	289

56. Answer: c)

Quantity I: Two caps taken randomly from the bag S. What is the probability of getting one red and one pink?

Required probability = $(10C_1*10C_1)/50C_2$

= (10*10)/(50*49/(1*2))

= (10*10*2)/(50*49)

= 4/49

= 0.081

Quantity II: Two caps taken randomly from the bag T. What is the probability of getting both are red colour?

Required probability = $10C_2/30C_2$

= (10*9)/(30*29) = 3/29 = 0.1034

Quantity III: 7/20

7/20 = 0.35

Quantity I < Quantity II < Quantity III

57. Answer: b)
Quantity I: One cap is taken randomly from bag R, S and T. What is the probability of getting a black colour cap?
Required probability = (1/3) *(25/80 + 15/50 + 5/30)
= (1/3) * (5/16 + 3/10 + 1/6)
= (1/3) *((75+72+40)/240)
= (1/3) *(187/240)
= 187/720
= 0.2597
Quantity II: Two caps taken randomly from bag P. What is the probability of getting at least one green cap?
Required probability = 1 – Probability of none of the cap is green
= 1 – ($35C_2$/$45C_2$)
= 1 – ((35*34)/(45*44))
= 1 – 119/198
= 79/198
= 0.3989
Quantity I < Quantity II

58. Answer: b)
Total caps sold at 20% discount in bag Q = 84 * 25/100
= 84 * ¼ = 21
Total red caps sold at 20% discount in bag Q = 21 * 33 (1/3) %
= 21 * 1/3 = 7
Remaining red caps = 30 – 7 = 23
Required probability = ($23C_1$/$84C_1$)*($21C_1$/$83C_1$)
= (23/84) * (21/83)
= 23/332

59. Answer: c)
Total caps in bag S after x green colour caps taken out
= 50 – x

Total caps in bag T after x green colour caps added =
30 + x
Total caps in bag T after 2x red and x pink colour caps taken out
= (30 + x) – (2x + x)
= 30 – 2x
Total caps in bag S after 2x red and x pink colour caps added
= (50 - x) + (2x + x)
= 50 – x + 2x + x = 50 + 2x
In bag S, Probability of getting black colour cap is 1/6
$15C_1$/$(50+2x)C_1$ = 1/6
15/(50+2x) = 1/6
90 = 50 + 2x
2x = 40
= > x = 20 caps

60. Answer: d)
Quantity I: Total number of black colour caps is what percentage less than the total number of caps in bag R?
Required percentage = [(80 - 77)/80] * 100
= 3.75 %
Quantity II: Total number of green colour caps is what percentage more than the total number of caps in bag S?
Required percentage = [(69 - 50)/50] * 100
= (19/50) * 100
= 38%
Quantity III: Total number of red colour caps is what percentage more than the total number of caps in bag T?
Required percentage = [(69 - 30)/30] * 100
= (39/30)*100= 130%
Quantity I < Quantity II < Quantity III

Set 13 :

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Direction: (61 - 65):
61. Answer: d)
From statement I,
Total number of cars manufactured by all the given companies in the year 2012
= (3000+2500+3500+4000) * (16/100)
= 13000 * (16/100)
= 2080
Let us take the number of defective cars manufactured in the year 2012 by company B be x ---- (1)
Number of defective cars manufactured in the year 2012 by company C
= x – 50 ---- (2)
Number of defective cars manufactured in the year 2012 by company A
= x + 150 ---- (3)
Number of defective cars manufactured by company D in 2012
= 3500 * (18/1000)
= 630
Total number of defective cars manufactured by company A, B and C
= 2080 – 630
A + B + C = 1450 ---- (4)
Substitute the equation (1), (2) and (3) in equation (4)
(x + x – 50 + x + 150) = 1450
3x = 1450 + 50 – 150
= > 3x = 1350
= > x = 1350/3 = 450
From statement I, we can find the number of defective cars manufactured by company B in the year 2012 and there is no information about the number of defective cars manufactured by company C in the year 2014.
From statement II,
Number of defective cars manufactured by company C in the year 2014 is twice the number of defective cars manufactured by company B in the same year which is

300 less than the number of defective cars manufactured company D in the same year.
Let us take the number of defective cars manufactured by company C in the year 2014 be x
The number of defective cars manufactured by company B in the year 2014 is 2x
The number of defective cars manufactured by company D in the year 2014
= 2x + 300
From statement II, we could not find the number of defective cars manufactured by company C in the year 2014.
From I and II, both the statements are not necessary to answer the question.

62. Answer: d)
From I,
Number of cars sold by company B in the year 2011
= 5000 * 80/100 = 4000
Number of cars sold by company D in the year 2013
= 3500 * 50/100 = 1750
Required difference = 4000 – 1750 = 2250
From II,
Total cars sold by company C in the year 2014 and 2015
= 3000 * 45/100 + 4500 * 60/100
= 1350 + 2700
= 4050
Total cars sold by company A in the year 2013 and 2014
= 2000 * 64/100 + 4500 * 56/100
= 1280 + 2520
= 3800
Required ratio = 4050: 3800 = 405: 380 = 81 : 76
From III,
Total number of cars manufactured by company A and B in the year 2011

= 4000 + 5000 = 9000
Total number of cars manufactured by the same company in the year 2014
= 4500 + 5000
= 9500
Total number of cars manufactured by company A and B in the year 2011 is not equal to the Total number of cars manufactured by the same company in the year 2014.

63. Answer: d)
The number of defective cars manufactured in the year 2011
= (4000+5000+2000+6000)*(12/100)
= 17000 * 12/100
= 2040
The number of defective cars manufactured in the year 2012
= (3000+2500+3500+4000)*(16/100)
= 13000 * 16/100
= 2080
The number of defective cars manufactured in the year 2013
= (2000+1500+2500+3500) * 25/100
= 9500 * 25/100
= 2375
The number of defective cars manufactured in the year 2014
= (4500+5000+3000+6000)*24/100
= 18500 * 24/100
= 4440
The number of defective cars manufactured in the year 2015
= (3500+1500+4500+6500)*18/100
= 16000*18/100
= 2880

In the year 2011, the number of defective cars manufactured is minimum.

64. Answer: b)
Quantity I: Find the total number of cars sold by company C in the given years.
Required total
= 2000*90/100 + 3500*70/100 + 2500*80/100 + 3000*45/100 + 4500*60/100
= 1800 + 2450 + 2000 + 1350 + 2700
= 10300
Quantity II: Find the total number of cars sold by company D in the given years.
Required total
= 6000*85/100+4000*90/100+3500*50/100+6000*75/100+6500*40/100
= 5100 + 3600 + 1750 + 4500 + 2600
= 17550
Quantity I < Quantity II

65. Answer: c)
Company A:
Increased percentage = [(4500 - 2000)/2000] * 100
= (2500/2000) * 100
= 125%
Company B:
Increased percentage = [(5000 - 1500)/1500] * 100
= (3500/1500)*100
= 233.33%
Company C:
Increased percentage = [(3000 - 2500)/2500] * 100
= (500/2500) * 100
= 20%
Company D:
Increased percentage = [(6000 - 3500)/3500] * 100
= (2500/3500) * 100

= 71.42%

Company B has maximum increased percentage.

Set 14 :

Directions (66- 70):

Total number of balls in Box E = 45

Total number of balls in Box D = (80/100) * Total number of balls in Box E

= 4/5 * 45

= 36

Total number of balls in Box B = Total number of balls in Box D – 1

= 36 – 1 = 35

Total number of balls in Box E = (150/100) * Total number of balls in Box A

45 = 150/100 * Total number of balls in Box A

Total number of balls in Box A = 45 * (100/150) = 30

Total number of balls in Box C = 30

Box A:

Probability of drawing one pink ball = 1/5

Probability of drawing one red ball = 2/15

Probability of drawing one green ball = 2/5

Probability of drawing one black ball = 1 – (1/5 + 2/15 + 2/5)

= 1 – (3/15 + 2/15 + 6/15)

= 1 – 11/15

= 4/15

Probability ratio of Pink, Red, Black and Green colour balls

= 1/5: 2/15: 4/15: 2/5

= 3: 2: 4: 6

Total number of balls = 30

Number of pink colour balls = 30 * (3/15) = 6

Number of red colour balls = 30 * (2/15) = 4

Number of black colour balls = 30 * (4/15) = 8

Number of green colour balls = 30 * (6/15) = 12

Box B:

Probability of drawing one pink ball = 2/7

Probability of drawing one red ball = 1/7

Probability of drawing one black ball = 12/35

Probability of drawing one green ball = 1 – (2/7 + 1/7 + 12/35)

= 1 – (10/35 + 5/35 + 12/35)

= 1 – 27/35

= 8/35

Probability ratio of Pink, Red, Black and Green colour balls

= 2/7: 1/7: 12/35: 8/35

= 10: 5: 12: 8

Total number of balls = 35

Number of pink colour balls = 35 * (10/35) = 10

Number of red colour balls = 35 * (5/35) = 5

Number of black colour balls = 35 * (12/35) = 12

Number of green colour balls = 35 * (8/35) = 8

Box C:

Probability of drawing one pink ball = 1/6

Probability of drawing one red ball = 1/5

Probability of drawing one green ball = 1/2

Probability of drawing one black ball = 1 – (1/6 + 1/5 + 1/2)

= 1 – (5/30 + 6/30 + 15/30)

= 1 – 26/30

= 4/30

Probability ratio of Pink, Red, Black and Green colour balls

= 1/6: 1/5: 4/30: 1/2

= 5: 6: 4: 15

Total number of balls = 30

Number of pink colour balls = 30 * (5/30) = 5

Number of red colour balls = 30 * (6/30) = 6

Number of black colour balls = 30 * (4/30) = 4

Number of green colour balls = 30 * (15/30) = 15

Box D:

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Probability of drawing one pink ball = 1/9
Probability of drawing one red ball = 2/9
Probability of drawing one black ball = 2/9
Probability of drawing one green ball = 1 – (1/9 + 2/9 + 2/9)
= 1 – (5/9)
= 4/9
Probability ratio of Pink, Red, Black and Green colour balls
= 1/9: 2/9: 2/9: 4/9
= 1: 2: 2: 4
Total number of balls = 36
Number of pink colour balls = 36 * (1/9) = 4
Number of red colour balls = 36 * (2/9) = 8
Number of black colour balls = 36 * (2/9) = 8
Number of green colour balls = 36 * (4/9) = 16
Box E:
Probability of drawing one red ball = 4/15
Probability of drawing one black ball = 2/9
Probability of drawing one green ball = 1/3
Probability of drawing one pink ball = 1 – (4/15 + 2/9 + 1/3)
= 1 – (12/45 + 10/45 + 15/45)
= 1 – 37/45
= 8/45
Probability ratio of Pink, Red, Black and Green colour balls
= 8/45: 4/15: 2/9: 1/3
= 8: 12: 10: 15
Total number of balls = 45
Number of pink colour balls = 45 * (8/45) = 8
Number of red colour balls = 45 * (12/45) = 12
Number of black colour balls = 45 * (10/45) = 10
Number of green colour balls = 45 * (15/45) = 15

Boxes	Pink	Red	Black	Green	Total
A	6	4	8	12	30
B	10	5	12	8	35
C	5	6	4	15	30
D	4	8	8	16	36
E	8	12	10	15	45

66) Answer: c)
Required probability
$= 1/3 * (12C_2/30C_2 + 15C_2/30C_2 + 15C_2/45C_2)$
$= 1/3 * [(12*11/30*29) + (15*14/30*29) + (15*14/45*44)]$
= 1/3 * (22/145 + 7/29 + 7/66)
= 1/3 * 4777/9570
= 4777/28710

67) Answer: d)
20% of the balls in Box A = 30 *(20/100)
= 6 balls
25% of the balls in Box D = 36 *(25/100)
= 9 balls
One – seventh of the balls in Box B = 1/7 * 35
= 5 balls
Total number of yellow colour balls in Box P = 6+9+5
= 20 balls
Total number of pink colour balls in Box P = 20*(5/4)
= 25 balls
Total number of balls in Box P = 20 + 25 = 45 balls
Required probability $= (20C_2 + 25C_2)/45C_2$
= [(20*19/1*2) + (25*24/1*2)]/(45*44/1*2)
= (190 + 300)/990
= 490/990
= 49/99

68) Answer: a)
Quantity I: One ball is taken from Box B and the probability of getting blue ball is 1/6
Total number of balls in Box B = 35 + blue colour balls

Probability of getting one blue ball = $BC_1/(35 +B)C_1 = 1/6$

$1/6 = B/(35 +B)$

$35 + B = 6B$

$5B = 35 => B = 7$

Total balls in Box B = 35 + 7 = 42

Quantity II: One ball is taken from Box C and the probability of getting yellow balls is 1/6

Total number of balls in Box C = 30 + Yellow colour balls

Probability of getting one yellow ball = $YC_1/(30 + Y)C_1 = 1/6$

$1/6 = Y/(30 + Y)$

$30 + Y = 6Y$

$5Y = 30 => Y = 6$

Total balls in Box B = 30 + 6 = 36

Quantity III: One ball is taken from Box E and the probability of getting brown ball is 1/10

Total number of balls in Box E = 45 + brown colour balls

Probability of getting one brown ball = $BC_1/(45 +B)C_1 = 1/10$

$1/10 = B/(45 +B)$

$45 + B = 10B$

$9B = 45 => B = 5$

Total balls in Box B = 45 + 5 = 50

Quantity I > Quantity II < Quantity III

69) Answer: d)

Probability of getting one pink ball from Box A = $6C_1/30C_1$

= 6/30 = 1/5

Probability of getting one green ball from Box C = $15C_1/30C_1$

= 15/30 = ½

Required ratio = 1/5: ½ = 2: 5

70) Answer: e)

50% of the balls from Box A = 50/100 * 30 = 15

20% of the balls from Box E = 20/100 * 45 = 9

$2/9^{th}$ of the balls from Box D = 36 * 2/9 = 8

Total number of balls from Box X = 15 + 9 + 8

= 32 balls

From I,

Probability of getting one pink ball = $PC_1/32C_1 = ¼$

$¼ = P/32$

$4P = 32 => P = 8$

Number of pink colour balls in Box X is 8. Total number of red and blue colour balls in Box X is (32 - 8) = 24 balls

From that, statement I alone is not sufficient to answer the given question.

From II,

Probability of getting one red ball = $RC_1/32C_1 = 3/8$

$3/8 = R/32$

$8R = 32*3 => R = 12$

Number of red colour balls in Box X is 12. Total number of pink and blue colour balls in Box X is (32 - 12) = 20 balls

From that, statement II alone is not sufficient to answer the given question.

From III,

Probability of getting one pink ball = $BC_1/32C_1 = 3/8$

$3/8 = B/32$

$8B = 32*3 => B = 12$

Number of blue colour balls in Box X is 12. Total number of red and pink colour balls in Box X is (32 - 12) = 20 balls

From that, statement III alone is not sufficient to answer the given question.

From I and II,

Total balls = 32

Pink colour balls = 8

Red colour balls = 12

Blue colour balls = 32 – 8 – 12 = 12 balls
Required ratio = 8: 12: 12 = 2: 3: 3
From II and III,
Total balls = 32
Red colour balls = 12
Blue colour balls = 12 balls
Pink colour balls = 32 – 12 – 12 = 8 balls
Required ratio = 8: 12: 12 = 2: 3: 3
From I and III,
Total balls = 32
Pink colour balls = 8
Blue colour balls = 12
Red colour balls = 32 – 8 – 12 = 12 balls
Required ratio = 8: 12: 12 = 2: 3: 3

Set 15 :
Directions (71 -75):
Monday:
Ratio of downstream speed to upstream speed = 150: 100
= 3: 2
If the downstream speed is increased by 10 km/hr, then the boat takes 3 hours to cover 120 km.
Downstream speed = 3x + 10
According to the statement,
120/(3x+10) = 3
120 = 3*(3x + 10)
40 = 3x + 10
= > 3x = 30
= > x = 10 km/hr
Downstream speed = 3*10 = 30 km/hr
Upstream speed = 2*10 = 20 km/hr

Speed of the boat = ½ * (Downstream speed + Upstream speed)
= ½ *(30 + 20)
= ½ * 50 = 25 km/hr
Speed of the stream = ½ * (Downstream speed – Upstream speed)
= ½ * (30 - 20)
= ½ * 10 = 5 km/hr
Tuesday:
Ratio of the speed of the boat to speed of the stream = x: 1/4*x
= 4: 1
Downstream speed = 150/5 = 30 km/hr
Downstream speed = (4x + x) = 5x = 30 km/hr
= > x = 30/5 = 6 km/hr
Upstream speed = (4x - x) = 3x = 3 * 6 = 18 km/hr
Speed of the boat = ½ * (Downstream speed + Upstream speed)
= ½ * (30 + 18)
= ½ * 48 = 24 km/hr
Speed of the stream = ½*(Downstream speed – Upstream speed)
= ½ * (30 - 18)
= ½ * 12 = 6 km/hr
Wednesday:
Ratio of downstream speed to upstream speed = 200: 100 = 2: 1
Downstream speed = 200/5 = 40 km/hr
Upstream speed = 40/2 * 1 = 20 km/hr
Speed of the boat = ½ * (Downstream speed + Upstream speed)
= ½* (40 + 20)
= ½ * 60 = 30 km/hr
Speed of the stream = ½*(Downstream speed – Upstream speed)
= ½ * (40 - 20)
= ½ * 20 = 10 km/hr

Thursday:
Ratio of the speed of the boat to speed of the stream =
x: 1/3*x
= 3: 1
Downstream speed = (3x +x) = 4x
Upstream speed = (3x - x) = 2x
Downstream speed – Upstream speed = 4x – 2x = 10 km/hr
2x = 10
= > x = 5 km/hr
Downstream speed = 5 * 4 = 20 km/hr
Upstream speed = 2 * 5 = 10 km/hr
Speed of the boat = 3x = 15 km/hr
Speed of the stream = x = 5 km/hr
Friday:
Ratio of the speed of the boat to the speed of the stream = 2: 1
Speed of the stream = 20 km/hr
Speed of the boat = 20/1 * 2 = 40 km/hr
Downstream speed = (Speed of the boat + Speed of the stream)
= (40 + 20) = 60 km/hr
Upstream speed = (Speed of the boat – Speed of the stream)
= (40 - 20) = 20 km/hr

Days	Speed of the boat (km/hr)	Speed of the stream (km/hr)	Downstream speed (km/hr)	Upstream speed (km/hr)
Monday	25	5	30	20
Tuesday	24	6	30	18
Wednesday	30	10	40	20
Thursday	15	5	20	10
Friday	40	20	60	20

71) Answer: d)
Speed of boat on Saturday = 50/100 *(25 + 15)
= 40/2 = 20 km/hr
Speed of the stream on Wednesday = 2*5 = 10 km/hr
Upstream speed = 20 – 10 = 10 km/hr
Total upstream distance covered by all the given boat in 5 days
= (20 + 18 + 20 + 10 + 20)*5
= 88*5 = 440 km
Average of upstream distance covered by all the boat in 5 hours in all 5 days together
= 440/5 = 88 km
Required time = 88/10 = 8.8 hours

72) Answer: b)
New speed of boat on Wednesday = 120/100 * 30
= 36 km/hr
New speed of stream on Wednesday = 120/100 * 10
= 12 km/hr
Downstream speed = 36 + 12 = 48 km/hr
Upstream speed = 36 – 12 = 24 km/hr
From I,
Total time taken by boat on Wednesday = 200/40 + 100/20
= 5 + 5 = 10 hours
New total time taken by boat on Wednesday = 200/48 + 100/24
= (400/48) = 25/3 hours
Required percentage = [(10 – 25/3) / 10] * 100 = 50/3 %
Hence, statement I alone is sufficient to answer the given question.

From II,

From statement II, we don't have any other information about total distance covered by boat initially.

Hence, statement II alone is not sufficient to answer the given question.

73) Answer: b)

Quantity I: Total upstream distance covered by all the given boat in all the 5 days together in 10 hours.

Total upstream distance in all the given 5 days

= 10 *(20+18+20+10+20)

= 10*88 = 880 km

Quantity II: Total downstream distance covered by all the given boat in all the 5 days together in 5 hours.

Total downstream distance in all the given 5 days

= 5 * (30+30+40+20+60)

= 5 * 180

= 900 km

Hence, Quantity I < Quantity II

74) Answer: e)

Speed of the boat on Sunday = 50/100 * (24 + 40) = 32 km/hr

Speed of the stream on Sunday = ½ * 20 = 10 km/hr

Downstream speed = 32 + 10 = 42 km/hr

Upstream speed = 32 – 10 = 22 km/hr

Average speed = 2 * 42 * 22/(42 + 22)

= 231/8 km/hr

75) Answer: b)

Quantity I: Average speed of the boat on Friday is what percentage more/less than the average speed of the boat on Monday?

Average speed of the boat on Friday

= 2 * 60 * 20/(60 + 20)

= 2400/80

= 30 km/hr

Average speed of the boat on Monday

= 2 * 30 * 20/(30 + 20)

= 24 km/hr

Required percentage

= [(30 - 24)/24] * 100

= 25%

Quantity II: Average speed of the boat on Tuesday is what percentage more/less than the average speed of the boat on Thursday?

Average speed of the boat on Tuesday

= 2 * 30 * 18/(30 + 18)

= 22.5 km/hr

Average speed of the boat on Thursday

= 2 * 20*10/(20+10)

= 400/30 = 40/3 km/hr

Required percentage = [(22.5 – 40/3)/(40/3)] * 100

= [(27.5*3)/(40*3)] * 100

= 68.75%

Hence, Quantity I < Quantity II

Set 16 :

Direction: (76 - 80):

76) Answer: c)

Let the principle amount of D be x,

Simple interest of D = (x/2) – 1000

According to the question,

S.I = PNR/100

(x*6*8)/100 = (x/2) – 1000

48x/100 = (x – 2000)/2

96x = 100x – 200000

4x = 200000

X = 50000

Simple interest of D = (50000/2) – 1000 = Rs. 24000

77) Answer: a)

The ratio between the amount invested by B to that of C = 2: 3 (2x, 3x)

The amount invested by B = (90000/3)*2 = Rs. 60000
According to the question,
S.I = PNR/100
28800 = (60000*3*r)/100
R = (28800*100)/(60000*3) = 16 %

78) Answer: d)
The simple interest earned by C = The simple interest earned by A – 9000
The simple interest earned by A = 36000 + 9000 = Rs. 45000
According to the question,
S.I = PNR/100
45000 = (75000*n*12)/100
Number of years (n) = (45000*100)/(75000*12) = 5 years

79) Answer: b)
The average amount invested by all the given persons = Rs. 63000
The total amount invested by all the given persons = 63000*5 = Rs. 315000
A + B + C + D + E = 315000
B + D = 315000 – (75000 + 90000 + 40000)
B + D = 110000 ---→ (1)
The amount invested by B = The amount invested by D + 10000
B – D = 10000 ---→ (2)
By solving the equation (1) and (2), we get,
B = 60000, D = 50000
The amount invested by D = Rs. 50000

80) Answer: c)
The simple interest earned by E
= > [(40/100)*the simple interest earned by B] – 320
= > (40/100)*28800 – 320
= > Rs. 11200

According to the question,
S.I = PNR/100
11200 = (40000*2*r)/100
R = (11200*100)/80000 = 14 %
Rate of interest per annum (r) = 14 %

Set 17 :
Direction: (81 - 85):
81) Answer: b)
(SP/75×100+SP/90×100+SP/80 100)/3=3990
Solving this we will get SP=2160
Then MP of soap by shop B= 2160/90×100=Rs 3600

82) Answer: a)
SP/85×100-SP/95×100=504
SP= (504×17×19)/40
= 4069.8
MP by shop C= (SP/70)×100 =Rs 5814

83) Answer: e)
(MP×84)/100+(MP × x)/100=3728 ---(1)
(MP × x)/100+(MP×72)/100=3368 ---(2)
Subtracting equation 1 from equation 2 we get
(MP×12)/100=360
Thus MP= Rs 3000
Then SP of shop is 72% of MP which is Rs 2160

84) Answer: c)
If discount is Rs 741 in shop B then SP of rice is=
(741/15)×85=4199
MP of rice by shop A=(4199/65)×100=6460
MP of rice by shop C = (4199/95)×100=4420
Average of MP of these two shops is = Rs 5440

85) Answer: d)
Ratio of discount for sugar by shop B is 30%

According to given question discount by shop A will be 10%

Thus we have mp$\times$90/100 - mp$\times$70/100=680

After solving this we have MP= Rs 3400

And difference between SP of shop A and shop C is 780

(i.e.) 3400$\times$90/100-sp of shop C=780

SP by shop C is= 3060-780= Rs. 2280

Set 18 :
Direction: (86 - 90):

86. Answer: a)

A can complete the work in 10 days

R can complete the same work in,

C : R = 1 : 2

1's = 12

R can complete the same work in = 2's = 24 days

(A + R)'s one day work = 1/10 + 1/24 = 34/(10*24) = 17/120

(A + R)'s 5 day work = (17/120)*5 = 17/24

Remaining work = 1 – (17/24) = 7/24

(7/24)*(R + M)'s whole work = 7/2

(R + M)'s whole work = (7/2)*(24/7) = 12 days

M's one day work,

= > (1/12) – (1/24) = 1/24

M alone can complete the work in, 24 days

87. Answer: d)

B can complete the work in, 15 days

S can complete the same work in,

D: S = 6: 7

6's = 18

1's = 3

S can complete the same work in = 7's = 21 days

(1/15 + 1/21)*x + (9/21) = 1

(1/15 + 1/21)*x = 1 – (9/21)

(1/15 + 1/21)*x = 1 – 3/7

[36/(15*21)]*x = 4/7

X = (4/7)*(15*21)/36

X = 5 days

B left the job after 5 days of the work.

88. Answer: b)

B can complete the work in, 15 days

R can complete the same work in,

C : R = 1 : 2

1's = 12

R can complete the same work in = 2's = 24 days

1/15 + 1/24 + 1/N = 1/8

1/N = (1/8) – (1/15 + 1/24)

1/N = 1/8 – 13/120

1/N = 1/60

N can complete the work alone in 60 days.

The efficiency of B, R and N are in the ratio of,

= > (1/15) : (1/24) : (1/60)

= > 8 : 5 : 2

15's = 7500

1's = 500

The share of N = 2's = Rs. 1000

89. Answer: a)

A's one day work = 1/10

C's one day work = 1/12

E's one day work = 1/20

C+ E's one day work = 1/12 + 1/20 = (5+3)/60 = 8/60 = 2/15

x/10 + (9/2)*(2/15) = 1

x/10 + 3/5 = 1

x/10 + 6/10 = 1

x+6 = 10

X = 4 days

90. Answer: c)

D can complete the work in 18 days.

M is 50 % more efficient than D

Efficiency ratio = > M: D = 150: 100 = 3: 2

Day ratio = > M: D = 2: 3

3's = 18

1's = 6

M can complete the work in = 2's = 12 days

$(1/12 + 1/18)*x = 1/3$

$[30/(12*18)]*x = 1/3$

X = 12/5 = 2 2/5 days

One-third of the work can be completed in 2 2/5 days

Set 19 :

Direction: (91 -95):

91. Answer: d)

Number of ways = $20C_1*15C_1*24C_3$

= 20*15*(24*23*22/1*2*3)

= 607200

92. Answer: d)

Number of ways = $(20+15+30+16+24+36)C_{(4 - 2)}$

= $141C_2$

= (141*140)/(1*2)

= 9870

93. Answer: c)

Required probability

= $(20C_1*30C_4 + 20C_2*30C_3 + 20C_3*30C_2 + 20C_4*30C_1)$

= [(20*(30*29*28*27/1*2*3*4)) +

((20*19/1*2)*(30*29*28/1*2*3)) +

((20*19*18/1*2*3)*(30*29/1*2)) +

((20*19*18*17/1*2*3*4)*30)

= (25*29*28*27) + (190*5*29*28) + (20*19*3*15*29) + (5*19*3*17*30)

= 548100 + 771400 + 495900 + 145350

= 1960750

94. Answer: a)

Required number of ways =

$20C_1*15C_1*30C_1*24C_1*36C_1$

= 20*15*30*24*36

= 77760000

95. Answer: e)

Required number of ways = 6! * 6!

= 6*5*4*3*2*1 * 6*5*4*3*2*1

= 720*720

= 518400

Set 20 :

Direction: (96 - 100):

96. Answer: c)

Total sample space = 6^2 = 36

(1,1), (1,2), (1,3), (1,4), (1,5), (1,6)

(2,1), (2,2), (2,3), (2,4), (2,5), (2,6)

(3,1), (3,2), (3,3), (3,4), (3,5), (3,6)

(4,1), (4,2), (4,3), (4,4), (4,5), (4,6)

(5,1), (5,2), (5,3), (5,4), (5,5), (5,6)

(6,1), (6,2), (6,3), (6,4), (6,5), (6,6)

Total possibilities of getting multiple of 6 = (1,6), (2,3), (3,2), (6,1) = 4

Total possibilities of getting multiple of 8 = (2,4), (4,2)

A's winning probability = 4/36 = 1/9

A's losing probability = (36-4)/36 = 32/36 = 8/9

B's winning probability = 2/36 = 1/18

B's losing probability = (36-2)/36

= 34/36 = 17/18

Probability of B winning in his 3rd attempt

= 17/18*17/18*1/18

= 289/5832

97. Answer: b)
Total sample space = 6^2 = 36

(1,1), (1,2), (1,3), (1,4), (1,5), (1,6)

(2,1), (2,2), (2,3), (2,4), (2,5), (2,6)

(3,1), (3,2), (3,3), (3,4), (3,5), (3,6)

(4,1), (4,2), (4,3), (4,4), (4,5), (4,6)

(5,1), (5,2), (5,3), (5,4), (5,5), (5,6)

(6,1), (6,2), (6,3), (6,4), (6,5), (6,6)

Total possibilities of getting a sum of 9 = (3,6), (4,5), (5,4), (6,3) = 4
Total possibilities of getting a sum of 10 = (4,6), (5,5), (6,4) = 3
A's winning probability = 4/36 = 1/9
A's losing probability = 1 – 1/9 = 8/9
B's winning probability = 3/36 = 1/12
B's losing probability = 1 – 1/12 = 11/12
Probability of A winning in his 2nd attempt
= 8/9*1/9 = 8/81

98. Answer: d)
Total sample space = 6^1 = 6 = (1, 2, 3, 4, 5, 6)
In game 1, both of them are allowed to throw a dice alternatively. If more than 5 appear on throwing, the person is said to be the winner.
Winning probability = 1/6
Losing probability = 5/6
Probability of A winning in his 3rd attempt
= 5/6*5/6*1/6
= 25/216

99. Answer: d)
Total cards = 52
Total number cards = 9*4 = 36
Total face card = 3*4 = 12
Total letter card = 4*4 = 16
A's winning probability = 36/52
= 9/13
A's losing probability = (52-36)/52
= 16/52 = 4/13
Probability of A's winning in his third attempt
= 4/13*4/13*9/13
=144/2197

100. Answer: e)
Total cards = 52
Total number cards = 9*4 = 36
Total face card = 3*4 = 12
Total letter card = 4*4 = 16
A's winning probability = 16/52
= 4/13
A's losing probability = 1 – 4/13
= 9/13
Probability of A winning in his 3rd attempt
= 9/13 * 9/13 * 4/13
= 324/2197

Set 21 :
Direction: (101 - 105):
101. Answer: b)
Let, number of dancers in group A = n
Doctors = 6
Singers = 3
Engineers = 5
Total number of persons in the group = 6 + 3 + n + 5 = 14 + n
According to the question
$^6c_1$ x $^3c_1$ x $^nc_1$ x $^5c_1$ x $^{(14+n-4)}c_1$ = 5040

$\Rightarrow 6 \times 3 \times n \times 5 \times {}^{(10+n)}c_1 = 5040$

$\Rightarrow n \times (10 + n) = 5040/90$

$\Rightarrow n^2 + 10n = 56$

$\Rightarrow n^2 + 10n - 56 = 0$

$\Rightarrow n^2 + 14n - 4n - 56 = 0$

$\Rightarrow n(n + 14) - 4(n + 14) = 0$

$\Rightarrow (n - 4)(n + 14) = 0$

$\Rightarrow n = 4, -14$ (not valid)

$\Rightarrow n = 4$

Hence, Dancers = 4

Total number of persons in the group = 14 + 4 = 18

Required probability = $({}^6c_2 \times {}^4c_2)/{}^{18}c_4$

= (15 x 6)/3060

= 1/34

102. Answer: a)

Let, number of doctors in group E = m

And number of engineers in group E = n

Singers = 8

Dancers = 10

Total number of persons in group E = m + n + 8 + 10 = 18 + m + n

According to the question

m/(18 + m + n) = 3/8

$\Rightarrow 8m = 54 + 3m + 3n$

$\Rightarrow 8m - 3m - 3n = 54$

$\Rightarrow 5m - 3n = 54$ ----------------- (i)

And

8/(18 + m + n) = ¼

$\Rightarrow 32 = 18 + m + n$

$\Rightarrow m + n = 32 - 18$

$\Rightarrow m + n = 14$ ------------- (ii)

Equation (i) + 3 x Equation (ii)

5m – 3n + 3m + 3n = 54 + 42

$\Rightarrow 8m = 96$

$\Rightarrow m = 12$

From (ii)

12 + n = 14

$\Rightarrow n = 14 - 12$

$\Rightarrow n = 2$

Hence, Doctors = 12

Engineers = 2

Required number of ways = ${}^{12}c_2 \times {}^8c_1 \times {}^{10}c_1$

= 66 x 8 x 10

= 5280

103. Answer: d)

Let, number of singers in group C = n

Doctors = 8

Dancers = 6

Engineers = 2

Total number of persons in group C = n + 8 + 6 + 2 = 16 + n

According to the question

${}^8c_2 \times {}^nc_1 \times {}^6c_2 \times {}^2c_1 = 2520$

$\Rightarrow 28 \times n \times 15 \times 2 = 2520$

$\Rightarrow n = 2520/840$

$\Rightarrow n = 3$

Singer = 3

Total number of persons in group C = 16 + 3 = 19

Probability of selecting 2 singers from group C = ${}^3c_2/{}^{19}c_2$

= 3/171

= 1/57

Probability of selecting 2 singers from group F = ${}^7c_2/{}^{24}c_2$

= 21/276

= 7/92

Required ratio = 1/57: 7/92 = 92:399

104. Answer: a)

Let, number of doctors in group B = m

And number of dancers in group B = n

Singers = 2

Engineers = 7
Total number of persons in group B = m + n + 2 + 7 = 9 + m + n
$m/(9 + m + n) = 2/9$
=> 9m = 18 + 2m + 2n
=> 9m − 2m − 2n = 18
=> 7m − 2n = 18 --------------- (i)
And
$2/(9 + m + n) = 1/9$
=> 18 = 9 + m + n
=> m + n = 18 − 9
=> m + n = 9 ---------------- (ii)
Equation (i) + 2 x Equation (ii)
7m − 2n + 2m + 2n = 18 + 18
=> 9m = 36
=> m = 4
From (ii)
4 + n = 9
=> n = 9 − 4
=> n = 5
Doctors = 4
Dancers = 5
Total number of persons in group B = 9 + 4 + 5 = 18
Quantity I:
Required number of ways = $^4c_2$ x $^2c_1$ x $^5c_1$ x $^7c_1$
= 6 x 2 x 5 x 7
= 420
Quantity II:
Required number of ways = $^4c_1$ x $^2c_2$ x $^5c_2$
= 4 x 1 x 10
= 40
Hence, Quantity I > Quantity II

105. Answer: c)
Let, number of engineers in group D = n
Doctors = 3
Singers = 6

Dancers = 4
Total number of persons in group D = n + 3 + 6 + 4 = 13 + n
From I:
$3/(13 + n) = 1/6$
=>18 = 13 + n
=> n = 18 − 13
=> n = 5
Required ratio = (3 + 6 + 4 + 5): (5 + 7 + 9 + 3)
= 18: 24
= 3:4
From II:
$^3c_1$ x $^6c_1$ x $^4c_1$ x $^nc_1$ = 360
=> 3 x 6 x 4 x n = 360
=> n = 360/72
=> n = 5
Required ratio = (3 + 6 + 4 + 5): (5 + 7 + 9 + 3)
= 18: 24
= 3:4
Hence, either statement I alone or statement II alone is sufficient to answer the question.

Set 22 :

Direction: (106 - 110):
106. Answer: d)
Area of field A = 15400/25 = 616 m^2
We know that
Area of a rectangle = length x breadth
=> 616 = 28 x breadth
=> Breadth = 616/28
=> Breadth = 22 m
We know that
Perimeter of rectangle = 2 x (length + breadth)
= 2 x (28 + 22)
= 2 x 50
= 100 m

Cost of fencing of field A = 100 x 10 = Rs.1000
Area of field D = 5760/30 = 192 m^2
We know that
Area of a triangle = ½ x base x height
=> 192 = ½ x 16 x height
=> Height = 192 x 2/16
=> Height = 24 m
But sides of the triangle are not known, hence, cost of fencing cannot be find out and required ratio cannot be find out.

107. Answer: b)
We know that
Area of a circle = πr^2
=> Area of field B = 22/7 x 21 x 21 = 1386 m^2
Cost of flooring/m^2 of field B = 34650/1386 = Rs.25
We know that
Area of trapezium = ½ x (sum of the bases) x height
=> Area of field E = ½ x (18 + 24) x 30
= ½ x 42 x 30
= 630 m^2
Cost of flooring/m^2 of field E = 12600/630 = Rs.20
Required percentage = 25/20 x 100 = 125%

108. Answer: d)
Area of field F = 15000/25 = Rs.600
We know that
Area of parallelogram = base x height
=> 600 = base x 20
=> Base = 600/20
=> Base = 30 m
Perimeter of field F = 2 x (30 + 24)
= 2 x 54
= 108 m
Cost of fencing of field F = 108 x 10 = Rs.1080
We know that
Perimeter of a square = 4 x side

= 4 x 24
= 96 m
Cost of fencing of field C = 96 x 12 = Rs.1152
Required average = (1080 + 1152)/2
= 2232/2
= Rs.1116

109. Answer: b)
Quantity I:
Perimeter of field A = 920/10 = 92 m
We know that
Perimeter of a rectangle = 2 x (length + breadth)
=> 92 = 2 x (28 + breadth)
=> 28 + breadth = 92/2
=> Breadth = 46 – 28
=> Breadth = 18 m
We know that
Area of rectangle = length x breadth
= 28 x 18
= 504 m^2
Total cost of flooring of field A = 504 x 25 = Rs.12600
Quantity II:
Radius of field G = 21 + 7 = 28 m
We know that
Area of circle = πr^2
=> Area of field G = 22/7 x 28 x 28 = 2464 m^2
Total cost of flooring of field G = 2464 x 8 = Rs.19712
Hence, Quantity I < Quantity II

110. Answer: d)
From I:
Field H is rectangular in shape. Total cost of fencing of field H is Rs.960.
From II:
Length of field H is 4 m more than its breadth. Cost of flooring/m^2 of field H is Rs.22.
From I and II:

Let, breadth of field H = b m
=> Length = (b + 4) m
Perimeter of field H = 960/15 = 64 m
We know that
Perimeter of a rectangle = 2 x (length + breadth)
=> 64 = 2 x (b + 4 + b)
=> 2b + 4 = 64/2
=> 2b = 32 – 4
=> b = 28/2
=> b = 14
Hence, breadth = 14 m
Length = 14 + 4 = 18 m
We know that
Area of rectangle = length x breadth
=> Area of field H = 18 x 14 = 252 m^2
Total cost of fencing of field H = 252 x 22 = Rs.5544
Hence, both statements I and II together are needed to answer the question.

Set 23 :
Direction: (111 - 115):
111. Answer: C
Total quantity of mixture in container D = (10/100) x 1200 = 120 litres
Initial quantity of water in container D = (40/100) x 120 = 48 litres
Initial quantity of wine in container D = 120 – 48 = 72 litres
Wine : Water = 72 : 48 = 3 : 2
Quantity of wine remained in the container after using 25% of the mixture
= 72 – (3/5) x (25/100) x 120
= 72 – 18 = 54 litres
Quantity of water remained in the container after using 25% of the mixture
= 48 – (2/5) x (25/100) x 120
= 48 – 12 = 36 litres

Now,
Wine : Water = (54 + 16) : (36 + 14)
= 70 : 50 = 7 : 5
Quantity of wine in the final mixture = 70 – 7/12 x 24 + 4
= 70 – 14 + 4
= 60 litres
Required percentage = (72/60) x 100 = 120%

112. Answer: B
Total quantity of mixture in container A = (20/100) x 1200 = 240 litres
Quantity of water in container A = (30/100) x 240 = 72 litres
Quantity of wine in container A = 240 – 72 = 168 litres
Wine : Water = 168 : 72 = 7 : 3
Total quantity of mixture in container C = (12/100) x 1200 = 144 litres
Quantity of water in container C = (50/100) x 144 = 72 litres
Quantity of wine in container C = 144 – 72 = 72 litres
Wine : Water = 72 : 72 = 1 : 1
Total quantity of mixture in container E = (15/100) x 1200 = 180 litres
Quantity of water in container E = (35/100) x 180 = 63 litres
Quantity of wine in container E = 180 – 63 = 117 litres
Wine : Water = 117 : 63 = 13 : 7
Respective ratio of wine and water in the final mixture of container G
= (40 + 7/10 x 40/100 x 240 + ½ x 25/100 x 144 + 13/20 x 30/100 x 180) : (25 + 3/10 x 40/100 x 240 + ½ x 25/100 x 144 + 7/20 x 30/100 x 180)
= (40 + 67.2 + 18 + 35.1) + (25 + 28.8 + 18 + 18.9)
= 160.3 : 90.7
= 1603 : 907

113. Answer: B
Total quantity of mixture in container B = (18/100) x 1200 = 216 litres
Quantity of water in container B = (25/100) x 216 = 54 litres
Quantity of wine in container B = 216 – 54 = 162 litres
Total quantity of mixture in container F = (25/100) x 1200 = 300 litres
Quantity of water in container F = (24/100) x 300 = 72 litres
Quantity of wine in container F = 300 – 72 = 228 litres
In container H:
Wine = 162 + 228 + 10 = 400 litres
Water = 54 + 72 + 4 = 130 litres
Wine : Water = 400 : 130 = 40 : 13
Quantity of wine in the remaining mixture of container H
= 400 – 40/53 x 53 = 360 litres
Quantity of water in the remaining mixture of container H
= 130 – 13/53 x 53 = 117 litres
Required difference = 360 – 117 = 243 litres

114. Answer: A
Quantity I:
Total quantity of mixture in container A = (20/100) x 1200 = 240 litres
Quantity of water in container A = (30/100) x 240 = 72 litres
Quantity of wine in container A = 240 – 72 = 168 litres
Wine : Water = 168 : 72 = 7 : 3
Total quantity of mixture in container F = (25/100) x 1200 = 300 litres
Quantity of water in container F = (24/100) x 300 = 72 litres
Quantity of wine in container F = 300 – 72 = 228 litres
Total quantity of wine in container F

= 228 + 240 x (7/10) x [(100 – 40)/100]
= 228 + 240 x 7/10 x 60/100
= 228 + 100.8
= 328.8 litres
Quantity II:
Total quantity of mixture in container B = (18/100) x 1200 = 216 litres
Quantity of water in container B = (25/100) x 216 = 54 litres
Quantity of wine in container B = 216 – 54 = 162 litres
Wine : Water = 162 : 54 = 3 : 1
Total quantity of mixture in container E = (15/100) x 1200 = 180 litres
Quantity of water in container E = (35/100) x 180 = 63 litres
Quantity of wine in container E = 180 – 63 = 117 litres
Total quantity of wine in container E = 117 + ¾ x 216 x [(100 – 20)/100]
= 117 + 216 x ¾ x 80/100
= 117 + 129.6
= 246.6 litres
Hence, Quantity I > Quantity II

115. Answer: D
Total quantity of mixture in container C = (12/100) x 1200 = 144 litres
Quantity of water in container C = (50/100) x 144 = 72 litres
Quantity of wine in container C = 144 – 72 = 72 litres
From I:
Total quantity of mixture in container D = (10/100) x 1200 = 120 litres
Quantity of water in container D = (40/100) x 120 = 48 litres
Quantity of wine in container D = 120 – 48 = 72 litres
Quantity of wine in container G = 72 x (125/100) = 90 litres

From II:

Total quantity of mixture in container F = (25/100) x 1200 = 300 litres

Total quantity of mixture in container G = 300 x (110/100) = 330 litres

From I and II:

Quantity of water in container G = 330 – 90 = 240 litres

Required difference = (72 + 240) – (72 + 90)

Set 24 :

Direction: (116 - 120):

116. Answer: c)

Part of the cistern filled by pipe A and pipe C = 5/30 + 5/20

= 1/6 + 1/4

= (2 + 3)/12

= 5/12

Remaining part of the tank = 1 – 5/12

= (12 – 5)/12

= 7/12

Let the time taken by B be 'n' minutes,

n/25 + (n + 5)/40 = 7/12

= > (8n + 5n + 25)/200 = 7/12

= > 13n + 25 = 200 x 7/12

= > 13n = (350/3) – 25

= > 13n = (350 – 75)/3

= > 13n = 275/3

= > n = (275/3) x (1/13)

= > n = 275/39 days

117. Answer: a)

Part of the tank filled by pipe E, pipe Q and pipe F in 4 minutes

= 4/10 – 4/40 + 4/15

= (48 – 12 + 32)/120

= 68/120

= 17/30

Part of the tank emptied by pipe P and pipe U in 10 minutes = 10/60 + 10/80

= (40 + 30)/240

= 70/240

= 7/24

Remaining part of the tank = (1 – 17/30) + (13/30 – 7/24)

= (30 – 17)/30 + (312 – 210)/(30*24)

= 13/30 + 17/120

= (52 + 17)/120

= 69/120

= 23/40

Let, required time = n minutes

n/30 + n/10 = 23/40

= > (n + 3n)/30 = 23/40

= > 4n/30 = 23/40

= > n = (30/4) x (23/40)

= > n = 69/16 days

118. Answer: b)

Let, time taken by pipe B, pipe D and pipe F to fill the cistern = n minutes

Time taken by pipe P, pipe R and pipe T to empty the cistern = k minutes

And time taken by pipe A, pipe C and pipe T to fill the cistern = t minutes

n x (1/25 + 1/40 + 1/15) = 1

=> n x (24 + 15 + 40)/600 = 1

=> n = 600/79 minutes

k x (1/60 + 1/75 + 1/30) = 1

=> k x (5 + 4 + 10)/300 = 1

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=> k = 300/19 minutes
t x (1/30 + 1/20 − 1/30) = 1
=> t/20 = 1
=> t = 20 minutes
Required ratio = 600/79 : 300/19 : 20
= 570 : 1185 : 1501

119. Answer: b)
Quantity I:
1/D - 1/U + 1/G = 1/16
=> 1/40 − 1/80 + 1/G = 1/16
=> 1/G = 1/16 − 1/40 + 1/80
=> 1/G = (5 − 2 + 1)/80
=> 1/G = 4/80
=> 1/G = 1/20
Let, required time = n minutes
n x (-1/60 + 1/20 + 1/10) = 1
= > n x (-1 + 3 + 6)/60 = 1
= > n = 60/8
= > n = 15/2 minutes
Quantity II:
1/H = 1/30 x (120/100)
=> 1/H = 1/25
Let, required time = t minutes
t x (1/10 + 1/25 − 1/40) = 1
=> t x (20 + 8 − 5)/200 = 1
=> t = 200/23 minutes
Hence, Quantity I < Quantity II

120. Answer: d)
From I:
1/K + 1/M + 1/T = 7/60
=> 1/K + 1/M − 1/30 = 7/60
=> 1/K + 1/M = 7/60 + 1/30
=> 1/K + 1/M = (7 + 2)/60
=> 1/K + 1/M = 9/60
=> 1/K + 1/M = 3/20

From II:
1/M + 1/A + 1/F = 3/20
=> 1/M + 1/30 + 1/15 = 3/20
=> 1/M + (1 + 2)/30 = 3/20
=> 1/M + 3/30 = 3/20
=> 1/M + 1/10 = 3/20
=> 1/M = 3/20 − 1/10
=> 1/M = (3 − 2)/20
=> 1/M = 1/20
From I and II:
1/K + 1/20 = 3/20
=> 1/K = 3/20 − 1/20
=> 1/k = (3 − 1)/20
=> 1/K = 2/20
=> 1/k = 1/10
Let, required time = n minutes
n x (1/15 − 1/75 + 1/10) = ¼
=> n x (10 − 2 + 15)/150 = ¼
=> n = ¼ x 150/23
=> n = 75/46 minutes
Hence, both statements I and II together are needed to answer the question.

Set 25 :
Direction (121-125):
121. Answer: C
We know that
SI = (P x r x t)/100
CI = P x (1 + r/100)^t − P
Amount invested by Anil on SI = 25/100 x 400000 = Rs.100000
Amount invested by Anil on CI = 12/100 x 600000 = Rs.72000
Amount invested by Chandan on SI = 30/100 x 400000 = Rs.120000
SI for Anil = (100000 x 8 x 4)/100 = Rs.32000
CI for Anil = 72000 x (1 + 5/100)^2 − 72000

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= 72000 x 105/100 x 105/100 – 72000

= 79380 – 72000

= Rs.7380

SI for Chandan = (120000 x 10 x 8)/100 = Rs.96000

Required ratio = (32000 + 7380) : 96000

= 39380 : 96000

= 1969 : 4800

122. Answer: C

We know that,

Amount on CI = P x $(1 + r/100)^t$

Amount invested by Amar on CI = 28/100 x 600000 = Rs.168000

Amount invested by Deepak on CI = 20/100 x 600000 = Rs.120000

Amount of Amar = 168000 x $(1 + 6/100)^3$

= 168000 x 106/100 x 106/100 x 106/100

= Rs.200090.688

Amount of Deepak = 120000 x $(1 + 10/100)^4$

= 120000 x 110/100 x 110/100 x 110/100 x 110/100

= Rs.175692

Required percentage = (200090.688/175692) x 100

=> 113.887% = 115%

123. Answer: B

We know that

SI = (P x r x t)/100

CI = P x $(1 + r/100)^t$ – P

Amount invested by Bimal on SI = 15/100 x 400000 = Rs.60000

Amount invested by Bimal on CI = 24/100 x 600000 = Rs.144000

SI from scheme A = (30000 x 8 x 3)/100 = Rs.7200

SI from scheme B = (30000 x 6 x 6)/100 = Rs.10800

CI = 144000 x $(1 + 4/100)^2$ – 144000

= 144000 x 104/100 x 104/100 – 144000

= 155750.4 – 144000

= Rs.11750.4

Total interest = 7200 + 10800 + 11750.4 = Rs.29750.4

124. Answer: B

Quantity I:

We know that

Amount on CI = P x $(1 + r/100)^t$

Amount invested by Chandan on CI = 16/100 x 600000

= Rs.96000

=> 120422.4 = 96000 x $(1 + r/100)^2$

=> 120422.4/96000 = $(1 + r/100)^2$

=>784/625 = $(1 + r/100)^2$

=> $(28/25)^2$ = $(1 + r/100)^2$

=> 28/25 = 1 + r/100

=> r/100 = (28/25) – 1

=> r/100 = (28 – 25)/25

=> r = 100 x 3/25

=> r = 12%

Quantity II:

We know that

SI = (P x r x t)/100

Amount invested by Amar on simple interest = 20/100 x 400000 = Rs.80000

=> 15000 = (20000 x r x 5)/100

=> 1500000 = 100000 x r

=> r = 1500000/100000

=> r = 15%

Hence, Quantity I < Quantity II

125. Answer: D

We know that

CI = P*[$(1 + r/100)^t$ – 1]

From I:

Amount invested by Deepak on simple interest

= 10/100 x 400000 = Rs. 40000

Amount invested by Keshav on compound interest

= 40000 x 120/100 = Rs. 48000

From II:
t = 2 years
r = 5%
From I and II:
CI = 48000 x (1 + 5/100)^2 – 48000
= 48000 x 105/100 x 105/100 – 48000
= 52920 – 48000
= Rs. 4920
Hence, both the statements I and II together are needed to answer the question.

Set 26 :
Direction (126-130):
126) Answer: D
In bag A:
Red = 8
Green = 6
Yellow = 5/4 x 8 = 10
Let, Blue = n
Total = 8 + 6 + 10 + n = 24 + n
n/(24 + n) = 1/7
=> 7n = 24 + n
=> 7n – n = 24
=> 6n = 24
=> n = 4
Hence, Blue = 4
Total = 24 + 4 = 28
Probability of drawing two Red balls and two Blue balls from bag A
= ($^8c_2$ x $^4c_2$)/$^{28}c_4$
= (28 x 6)/20475
= 56/6825
In bag C:
Red = 9
Green = 3
Yellow = 2/3 x 9 = 6
Let, Blue = k

Total = 9 + 3 + 6 + k = 18 + k
k/(18 + k) = 1/10
=> 10k = 18 + k
=> 10k – k = 18
=> 9k = 18
=> k = 18/9
=> k = 2
Hence, Blue = 2
Total = 18 + 2 = 20
Probability of drawing two Green balls and two Yellow balls from bag C
= ($^3c_2$ x $^6c_2$)/$^{20}c_4$
= (3 x 15)/4845
= 3/323
Required percentage = [(56/6825)/(3/323)] x 100
= 88.34%
= 88% approx.

127) Answer: C
In bag B:
Red = 4
Green = 5
Let, Yellow = n
And Blue = k
Total = 4 + 5 + n + k = 9 + n + k
n/(9 + n + k) = 1/6
=> 6n = 9 + n + k
=> 6n – n – k = 9
=> 5n – k = 9 ----------- (i)
And
4/(9 + n + k) = 2/9
=> 36 = 18 + 2n + 2k
=> 2n + 2k = 36 – 18
=> 2n + 2k = 18
=> n + k = 9 ------------- (ii)
Adding (i) and (ii)
5n – k + n + k = 9 + 9

$\Rightarrow 6n = 18$

$\Rightarrow n = 3$

From (ii)

$3 + k = 9$

$\Rightarrow k = 9 - 3$

$\Rightarrow k = 6$

Hence, Yellow = 3

Blue = 6

Total = 9 + 3 + 6 = 18

In bag E:

Red = 6

Green = 4

Yellow = 4/3 x 6 = 8

Let, Blue = m

Total = 6 + 4 + 8 + m = 18 + m

$m/(18 + m) = 2/11$

$\Rightarrow 11m = 36 + 2m$

$\Rightarrow 11m - 2m = 36$

$\Rightarrow 9m = 36$

$\Rightarrow m = 4$

Hence, Blue = 4

Total = 18 + 4 = 22

Required ratio = 18 : 22 = 9 : 11

128) Answer: C

Red = 3

Green = 7

Let, Yellow = n

And Blue = k

Total = 3 + 7 + n + k = 10 + n + k

$k/(10 + n + k) = 3/10$

$\Rightarrow 10k = 30 + 3n + 3k$

$\Rightarrow 10k - 3k - 3n = 30$

$\Rightarrow 7k - 3n = 30$ --------- (i)

$n/(10 + n + k) = 1/5$

$\Rightarrow 5n = 10 + n + k$

$\Rightarrow 5n - n - k = 10$

$\Rightarrow 4n - k = 10$ ------------- (ii)

Equation (i) + 7 x equation (ii)

$7k - 3n + 28n - 7k = 30 + 70$

$\Rightarrow 25n = 100$

$\Rightarrow n = 4$

From (ii)

$4 \times 4 - k = 10$

$\Rightarrow k = 16 - 10$

$\Rightarrow k = 6$

Hence, Yellow = 4

Blue = 6

Total= 10 + 4 + 6 = 20

Probability of drawing four balls from bag D such that all the balls are of different colour

$= ({}^3c_1 \times {}^7c_1 \times {}^4c_1 \times {}^6c_1)/{}^{20}c_4$

$= (3 \times 7 \times 4 \times 6)/4845$

$= 504/4845$

Probability of drawing four balls from bag D such that all the balls are of same colour

$= ({}^7c_4 + {}^4c_4 + {}^6c_4)/{}^{20}c_4$

$= (35 + 1 + 15)/4845$

$= 51/4845$

Required sum = 504/4845 + 51/4845

$= (504 + 51)/4845$

$= 555/4845$

$= 37/323$

129) Answer: A

Quantity I:

Red = 9

Green = 3

Yellow = 2/3 x 9 = 6

Let, Blue = n

Total = 9 + 3 + 6 + n = 18 + n

$6/(18 + n) = ¼$

$\Rightarrow 24 = 18 + n$

$\Rightarrow n = 24 - 18$

$\Rightarrow n = 6$

Hence, Blue = 6

Total = 18 + 6 = 24

Required probability = $(^9c_2 \times {}^3c_1 \times {}^6c_1)/{}^{24}c_4$

= (36 x 3 x 6)/10626

= 108/1771

Quantity II:

Red = 6

Green = 4

Yellow = 4/3 x 6 = 8

Let, Blue = k

Total = 6 + 4 + 8 + k = 18 + k

4/(18 + k) = 2/11

$\Rightarrow$ 2/(18 + k) = 1/11

$\Rightarrow$ 22 = 18 + k

$\Rightarrow$ k = 22 − 18

$\Rightarrow$ k = 4

Hence, Blue = 4

Total = 18 + 4 = 22

Required probability = $(^6c_1 \times {}^4c_1 \times {}^4c_2)/{}^{22}c_4$

= (6 x 4 x 6)/7315

= 144/7315

Hence, Quantity I > Quantity II

130) Answer: C

Red = 5

Green = 8

Let, yellow = n

And Blue = k

Total = 5 + 8 + n + k = 13 + n + k

From I:

5/(13 + n + k) = ¼

$\Rightarrow$ 20 = 13 + n + k

$\Rightarrow$ n + k = 20 − 13

$\Rightarrow$ n + k = 7 ------------ (i)

n/(13 + n + k) = 3/20

$\Rightarrow$ 20n = 39 + 3n + 3k

$\Rightarrow$ 20n − 3n − 3k = 39

$\Rightarrow$ 17n − 3k = 39 ------------- (ii)

Equation (i) x 3 + Equation (ii)

3n + 3k + 17n − 3k = 21 + 39

$\Rightarrow$ 20n = 60

$\Rightarrow$ n = 3

From (i)

3 + k = 7

$\Rightarrow$ k = 7 − 3

$\Rightarrow$ k = 4

Hence, Yellow = 3

Blue = 4

Total = 13 + 3 + 4 = 20

Required probability = $(^8c_2 \times {}^4c_2)/{}^{20}c_4$

= (28 x 6)/4845

= 56/1615

From II:

8/(13 + n + k) = 2/5

$\Rightarrow$ 4/(13 + n + k) = 1/5

$\Rightarrow$ 20 = 13 + n + k

$\Rightarrow$ n + k = 20 − 13

$\Rightarrow$ n + k = 7 ----------- (iii)

k/(13 + n + k) = 1/5

$\Rightarrow$ 5k = 13 + n + k

$\Rightarrow$ 5k − k − n = 13

$\Rightarrow$ 4k − n = 13 --------- (iv)

Equation (iii) + Equation (iv)

n + k + 4k − n = 7 + 13

$\Rightarrow$ 5k = 20

$\Rightarrow$ k = 4

From (iii)

n + 4 = 7

$\Rightarrow$ n = 7 − 4

$\Rightarrow$ n = 3

Hence, Yellow = 3

Blue = 4

Total = 13 + 3 + 4 = 20

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Required probability = $(^8c_2 \times {}^4c_2)/{}^{20}c_4$

= (28 x 6)/4845

= 56/1615

Hence, either statement I alone or statement II alone is sufficient to answer the question.

Set 27 :
Direction (131-135):
131. Answer: b)
Let, monthly expenditures of Rakesh and Suresh in 2015 be Rs.3k and Rs.4k respectively.

According to the question

(35000 – 3k)/(45000 – 4k) = 4/5

=> 5 x (35000 – 3k) = 4 x (45000 – 4k)

=> 175000 – 15k = 180000 – 16k

=> 16k – 15k = 180000 – 175000

=> k = 5000

Monthly expenditure of Rakesh in 2015 = 3k = 3 x 5000 = Rs.15000

Monthly expenditure of Suresh in 2015 = 4k = 4 x 5000 = Rs.20000

Let, monthly expenditures of Rakesh and Suresh in 2016 be Rs.2n and Rs.3n respectively.

According to the question

(50000 – 2n)/(60000 – 3n) = 1/1

=> 50000 – 2n = 60000 – 3n

=> 3n – 2n = 60000 – 50000

=> n = 10000

Monthly expenditure of Rakesh in 2016 = 2n = 2 x 10000 = Rs.20000

Monthly expenditure of Suresh in 2016 = 3n = 3 x 10000 = Rs.30000

Percentage increase in monthly expenditure of Rakesh from 2015 to 2016

= (20000 – 15000)/15000 x 100

= 100/3%

Percentage increase in monthly expenditure of Suresh from 2015 to 2016

= (30000 – 20000)/20000 x 100

= 10000/20000 x 100

= 50%

Required percentage = (100/3)/50 x 100 = 66.67% = 67% approx.

132. Answer: d)
Let, monthly expenditures of Mukesh and Himesh in 2015 be Rs.4k and Rs.5k respectively.

(40000 – 4k)/(50000 – 5k) = 4/5

=> 5 x (40000 – 4k) = 4 x (50000 – 5k)

=> 200000 – 20k = 200000 – 20k

=> 0 = 0

Hence, required ratio cannot be determined.

133. Answer: d)
Let, monthly expenditures of Himesh and Mahesh in 2015 be Rs.2k and Rs.3k respectively.

According to the question

(50000 – 2k)/(60000 – 3k) = 1/1

=> 50000 – 2k = 60000 – 3k

=> 3k – 2k = 60000 – 50000

=> k = 10000

Monthly expenditure of Himesh in 2015 = 2k = 2 x 10000 = Rs.20000

Monthly expenditure of Mahesh in 2015 = 3k = 3 x 10000 = Rs.30000

Average of the monthly incomes of Himesh and Mahesh in 2015

= (50000 + 60000)/2

= 110000/2

= Rs.55000

Average of the monthly expenditures of Himesh and Mahesh in 2015

= (20000 + 30000)/2

= 50000/2

= Rs.25000

Required percentage = 55000/25000 x 100 = 220%

134. Answer: b)

Quantity I:

Let, monthly expenditures of Mahesh and Naresh in 2016 be Rs.8k and Rs.9k respectively.

(80000 – 8k)/(80000 – 9k) = 8/7

=> 7 x (80000 – 8k) = 8 x (80000 – 9k)

=> 560000 – 56k = 640000 – 72k

=> 72k – 56k = 640000 – 560000

=> 16k = 80000

=> k = 80000/16

=> k = 5000

Difference between the monthly expenditures of Mahesh and Naresh in 2016 = 9k – 8k = k = Rs.5000

Quantity II:

Let, monthly expenditures of Himesh and Rakesh in 2016 be Rs.3n and Rs.2n respectively.

(60000 – 3n)/(50000 – 2n) = 1/1

=> 60000 – 3n = 50000 – 2n

=> 3n – 2n = 60000 – 50000

=> n = 10000

Difference between the monthly expenditures of Himesh and Rakesh in 2016 = 3n – 2n = n = Rs.10000

Hence, Quantity I < Quantity II

135. Answer: d)

From I:

Monthly income of Raja in 2016 = 17/16 x 80000 = Rs.85000

Monthly savings of Raja in 2016 = Rs.45000

Monthly expenditure of Raja in 2016 = 85000 – 45000 = Rs.40000

From II:

Respective ratio of monthly expenditures of Raja and Mahesh in 2016 is 4:3.

From I and II:

Monthly expenditure of Mahesh in 2016 = ¾ x 40000 = Rs.30000

Monthly savings of Mahesh in 2016 = 80000 – 30000 = Rs.50000

Hence, both statements I and II together are needed to answer the question.

Set 28 :

Direction (136-140):

136. Answer: b)

Total time taken by train A to reach station N = 880/48 = 55/3 hours

Let, they meet after t hours from the time they start.

880 = (48 + 40) x t

=> 880 = 88 x t

=> t = 880/88

=> t = 10 hours

Required time = 55/3 – 10

= (55 – 30)/3

= 25/3 hours

137. Answer: c)

Length of train S = 11/13 x 520 = 440 m

Length of train P = 9/10 x 400 = 360 m

Let, speed of train C = s Km/h

(360 + 440) = (s + 40) x 5/18 x 36

=> 800 = (s + 40) x 10

=> 800 = 10s + 400

=> 10s = 800 – 400

=> 10s = 400

=> s = 400/10

=> s = 40 Km/h

Let, time taken by train C to cross train P = t seconds

And time taken by train C to cross train E = n seconds
(360 + 360) = (40 – 32) x 5/18 x t
=> 720 = 8 x 5/18 x t
=> t = 720/8 x 18/5
=> t = 324 seconds
And
(360 + 480) = (40 + 44) x 5/18 x t
=> t = 840/84 x 18/5
=> 36 seconds
Required ratio = 324: 36 = 9:1

138. Answer: a)
Let, they will meet after t hours from 10:00 PM.
36 x 5 + (36 + 15) x t = 1200
=> 180 + 51t = 1200
=> 51t = 1200 – 180
=> 51t = 1020
=> t = 1020/51
=> t = 20 hours
Required time = 10:00 PM + 20 hours = 6:00 PM on the next day

139. Answer: a)
Quantity I:
Let, speed of train A be s Km/h
Length of train Q = 12/11 x 440 = 480 m
(400 + 480) = (s + 30) x 5/18 x 72
=> 880 = (s + 30) x 20
=> 880 = 20s + 600
=> 20s = 880 – 600
=> 20s = 280
=> s = 14 Km/h
Let, required time taken = t seconds
(400 + 650) = 14 x 5/18 x t
=> 1050/14 x 18/5 = t
=> t = 270 seconds
Quantity II:

Let, speed of train D = s Km/h
Length of train T = ¾ x 480 = 360 m
(520 + 360) = (s – 33) x 5/18 x 264
=> 880 = (s – 33) x 220/3
=> 2640 = (s – 33) x 220
=> s – 33 = 2640/220
=> s – 33 = 12
=> s = 33 + 12
=> s = 45 Km/h
Let, required time taken = t seconds
520 + 380 = 45 x 5/18 x t
=> 900/45 x 18/5 = t
=> t = 72 seconds
Hence, Quantity I > Quantity II

140. Answer: c)
Let, speed of train B = s Km/h
From I:
Length of train R = 5/4 x 360 = 450 m
440 + 450 = (s + 41) x 5/18 x 36
=> 890 = (s + 41) x 10
=> s + 41 = 890/10
=> s = 89 – 41
=> s = 48 Km/h
Let, required time = t seconds
440 = (48 – 4) x 5/18 x t
=> t = 440/44 x 18/5
=> t = 36 seconds
From II:
440 + 560 = s x 5/18 x 75
=> s = 1000/75 x 18/5
=> s = 48 Km/h
Let, required time = t seconds
440 = (48 – 4) x 5/18 x t
=> t = 440/44 x 18/5
=> t = 36 seconds

Hence, either statement I alone or statement II alone is sufficient to answer the question.

Set 29 :
Direction (141-145):
141. Answer: a)
Ragini = Nimo + 2
Present age of Sarita = 11/9 x 18 = 22 years
Rahul + Sarita + Nimo + Ragini = 4 x 28.5 – 4 x 2
=> Rahul + Sarita + Nimo + Ragini = 114 – 8
=> Rahul + Sarita + Nimo + Ragini = 106
=> 30 + 22 + Nimo + Nimo + 2 = 106
=> 2 x Nimo = 106 – 54
=> Nimo = 52/2
=> Nimo = 26 years
Nimo + Nidhi = 21 x 2 + 4 x 2
=> 26 + Nidhi = 42 + 8
=> Nidhi = 50 – 26
=> Nidhi = 24 years
Required percentage = 24/25 x 100 = 96%

142. Answer: b)
Age of Mohan after six years = 24 + 6 = 30 years
Age of Nitin after six years = 17/15 x 30 = 34 years
Present age of Nitin = 34 – 6 = 28 years
Present age of Vinita = 5/4 x 20 = 25 years
Age of Vinita before five years = 25 – 5 = 20 years
Age of Sumi before five years = ¾ x 20 = 15 years
Present age of Sumi = 15 + 5 = 20 years
Required percentage = (24 + 20)/(28 + 25) x 100
= 44/53 x 100
= 83.01%
= 83% approx.

143. Answer: a)
Present age of Parul = 5/6 x 24 = 20 years
Age of Parul after four years = 20 + 4 = 24 years

Age of Nisha after four years = 11/12 x 24 = 22 years
Present age of Nisha = 22 – 4 = 18 years
Present age of Tina = 4/5 x 30 = 24 years
Nisha + Tina + Vinay = 3 x 21
=> 18 + 24 + Vinay = 63
=> Vinay = 63 – 42
=> Vinay = 21 years
Shashank = 21 – 3 = 18 years
Required average = (20 + 18)/2 = 38/2 = 19 years

144. Answer: a)
Quantity I:
Present age of Neha = 6/5 x 25 = 30 years
Suman + Neha + Merlin = 3 x 24
=> 18 + 30 + Merlin = 72
=> Merlin = 72 – 48
=> Merlin = 24 years
Required difference = 30 – 24 = 6 years
Quantity II:
Present age of Sarita = 11/9 x 18 = 22 years
Vikash + Sarita + Kavita = 3 x 22
=> 20 + 22 + Kavita = 66
=> Kavita = 66 – 42
=> Kavita = 24 years
Required difference = 24 – 24 = 0
Hence, Quantity I > Quantity II

145. Answer: d)
From I:
Present age of Vinita = 5/4 x 20 = 25 years
Present age of Tina = 4/5 x 30 = 24 years
Vinita + Tina + Deepa = 3 x 24
=> 25 + 24 + Deepa = 72
=> Deepa = 72 – 49
=> Deepa = 23 years
Meeta = 23 + 2 = 25 years
From II:

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Meeta + Seema = 22 x 2 + 2 x 2

=>Meeta + Seema = 44 + 4

=>Meeta + Seema = = 48

From I and II:

25 + Seema = 48

=> Seema = 48 – 25

=> Seema = 23 years

Age of Seema after four years = 23 + 4 = 27 years

Hence, both statements I and II together are needed to answer the question.

Set 30 :

Directions (146-150):
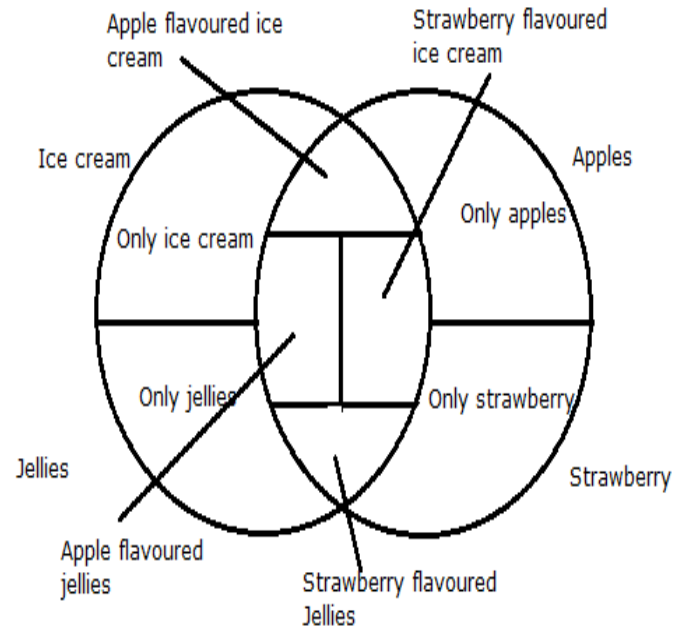
Total students = 1030

From statement (3),

Students like Apple flavoured ice cream = 30 + Students like Apple flavoured jellies

Let us take students like apple flavoured jellies be x

Students like apple flavoured ice cream = x + 30

From statement (2),

Students like only apples = students like apples – students like apple flavoured ice cream – students like apple flavoured jellies

Students like only apples = 250 – x – (x+30)

= 250 – 2x – 30

= 220 – 2x

From statement (4),

Students like strawberry flavoured jellies = (½)*Students like apple flavoured ice cream

Students like strawberry flavoured jellies = ½*(x+30)

From statement (5),

Students like strawberry flavoured ice cream = 3 * students like strawberry flavoured jellies

= 3 * [(x+30)/2]

From statement (1),

Students likes only fruits = 320

Students likes only ice cream = 240

Students like only strawberry = 320 - (220 - 2x)

All the statements together we get,

(240+180+x+x+30+3/2(x+30) + (x+30)/2+220-2x+100+2x)= 1030

(770 + 2x+4/2(x+30)) = 1030

=> 2x + 2 (x+30) = 260

=> 2x + 2x +60 = 260

=> 4x = 260 – 60

=> 4x = 200

=> x = 50
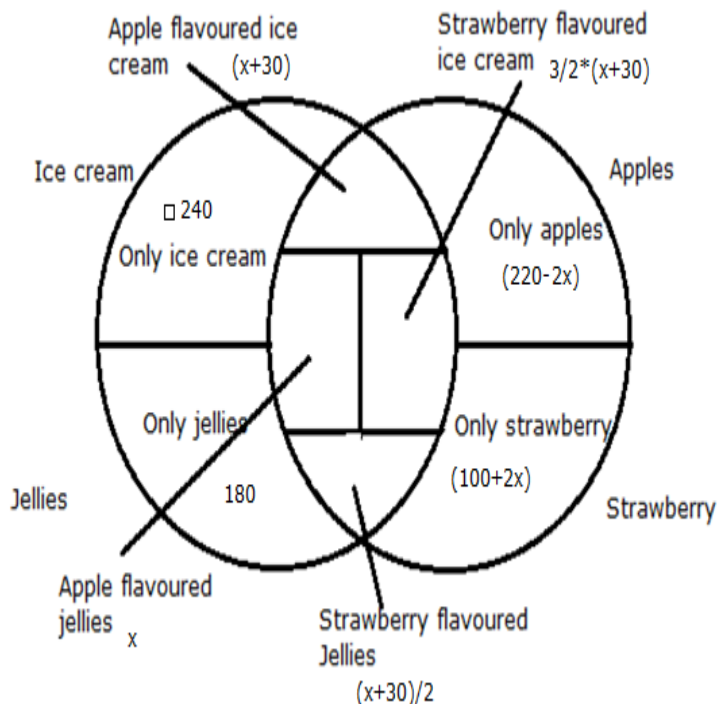
146. Answer: c)

Number of students like only strawberry = 200
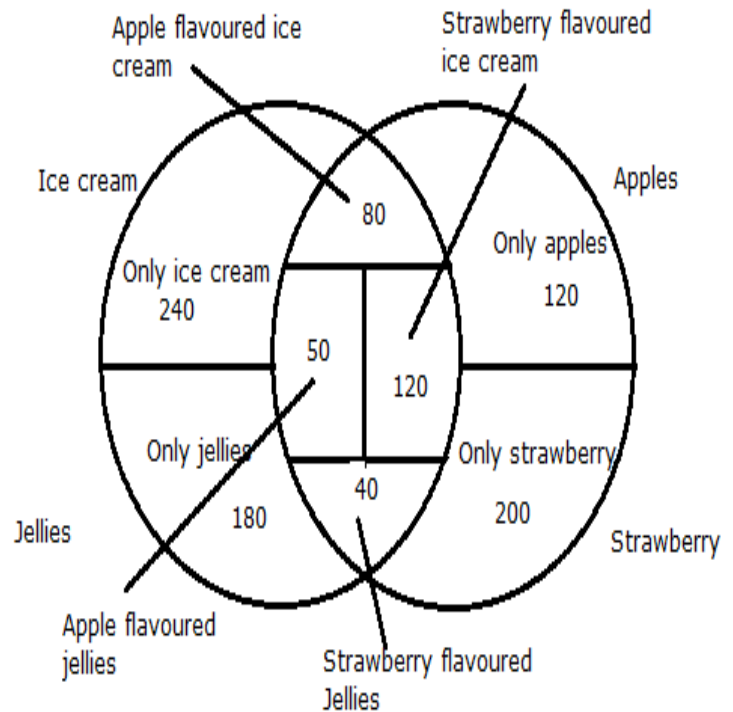
147. Answer: b)

Required ratio = (200+120+40): 80

= 360: 80

= 9: 2

148. Answer: d)

Number of students like Jellies = (180+50+40)

= 270

Number of students like strawberry = (200+120+40)

= 360

Required percentage = 270/360 * 100

= ¾*100

= 75%

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149. Answer: e)
Number of students like strawberry flavoured ice cream = 120
Number of girls like strawberry flavoured ice cream = 120/12 * 5 = 50

150. Answer: a)
Number of students like flavoured ice cream = (80+120)
= 200
Number of students like flavoured jellies = 50+40
= 90
Required difference = 200 – 90
= 110

Set 31 :
Directions (151 - 155):
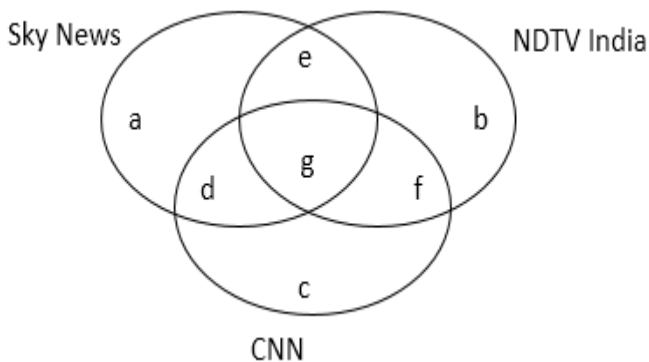
$a + b + c + d + e + f + g = 900$ ------------ (i)
$a + d + e + g = 40/100 \times 900 = 360$ --------------- (ii)
$c = 18/100 \times 900 = 162$ ------------- (iii)
$g = 5/100 \times 900 = 45$ ------------ (iv)
$c + d + f + g = 29/9 \times 162 = 522$ ----------- (v)
$d = 15/100 \times 900 = 135$ ------------ (vi)
From (iii), (iv), (v) and (vi)
$162 + 135 + f + 45 = 522$
$=> f = 522 – 342$
$=> f = 180$ ------------- (vii)

$b + f = 42/100 \times 900 = 378$ ------------ (viii)
From (vii) and (viii)
$b + 180 = 378$
$=> b = 378 – 180$
$=> b = 198$ ----------- (ix)
$b + e = 30/100 \times 900 = 270$ --------- (x)
From (ix) and (x)
$198 + e = 270$
$=> e = 270 – 198 = 72$
From (ii)
$a + 135 + 72 + 45 = 360$
$=> a = 360 – 252$
$=> a = 108$
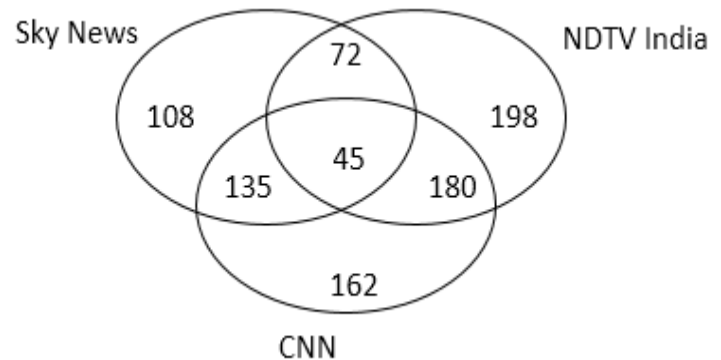
151. Answer: b)
Required percentage = 72/180 x 100 = 40%

152. Answer: d)
Number of boys who like only Sky News = 5/9 x 108 = 60
Number of boys who like only NDTV India = 6/11 x 198 = 108
Required percentage = 60/108 x 100 = 55.56% = 56% approx.

3. Answer: d)
Required ratio = (108 + 72): (162 + 180)
= 180: 342

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= 10:19

154. Answer: c)
Total number of students who like only one news
channel = 108 + 198 + 162
= 468
Total number of students who like only two news
channels = 135 + 72 + 180
= 387
Required difference = 468 – 387 = 81

155. Answer: c)
Required average = (180 + 72)/2
= 252/2
= 126

Set 32 :
Direction (156 – 160):
Let us take the original time taken to cross 240 km
distance be x hours
Time taken by train P to reach B =(X+1)
Time taken by train Q to reach B=(x+1)-2-1=(x-2)
Speed of train P =240/(x+1)
Speed of train Q =240/(x-2)
(240/(x+1))/(240/(x-2))=4/5
(x-2)/(x+1)=4/5
5x-10=4x+4
X=14
Time taken by train P =15 hrs
Time taken by train Q =12 hrs
Speed of train P (S) =240/15=16 kmph
Let the amount received by Anu=A
Let the amount received by Bharathi=14000-A
A+(A*5*10/100)=(14000-A)+((14000-A)*10*3/100)
A+A/2=(14000-A)+4200-3A/10
3A/2=18200-A-3A/10
3A/2+A+3A/10=18200

28A=182000
A=6500
Anu received (T)=Rs.6500
Initial amount=a
Second years=a*116/100
116a/100=23200
a=20000
Third year=a*(116/100)*(116/100)
Fourth year=a*(116/100)*(116/100)*(116/100)
Difference of fourth and third year
(U)=a*(116/100)*(116/100)*(116/100-1)
U=20000*(116/100)*(116/100)*(16/100)
Difference of fourth and third year (U) = 4305.92
Cost price of car=V
6500-V=3(V-4500)
6500-V=3V-13500
4V=20000
V=5000

156) Answer: c)
Speed of train P (S) =240/15=16 kmph

157) Answer: d)
V=5000

158) Answer: c)
Quantity I:
Difference of fourth and third year (U) = 4305.92
Quantity II:
Anu received (T) = Rs.6500
Quantity I < Quantity II

159) Answer: a)
Anu received (T) = Rs.6500
V=5000
Required difference = 6500 – 5000 = Rs.1500

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160) Answer: a)
Difference of fourth and third year (U) = 4305.92
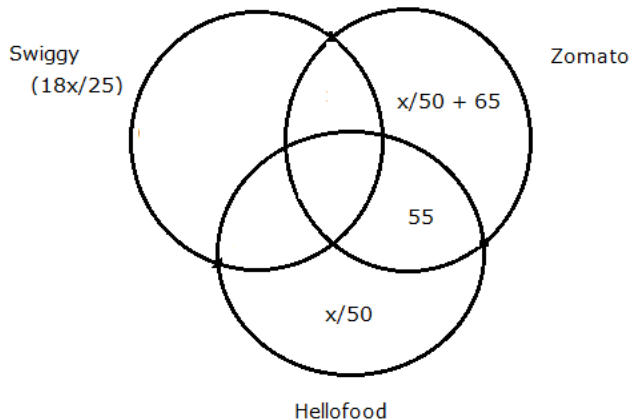
Set 33 :
Directions (161 - 165):
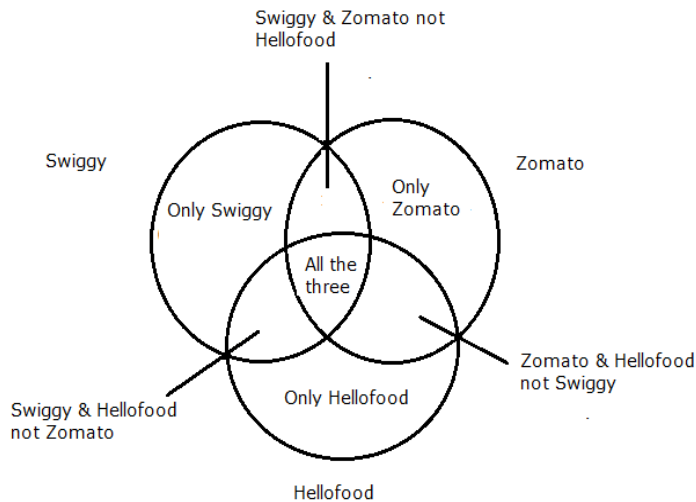
Total people = x
People working in Swiggy Company = 72/100 * x = 18x/25
People working in Only Hellofood Company = 18x/100 * 1/36 = x/50
Number of people working in both Hellofood Company and Zomato but not in Swiggy Company = 55
People working in only Zomato Company = x/50 + 65

According to the statement,
18x/25 + x/50 + 55 + x/50 + 65 = x
(36x+x+x)/50 + 120 = x
=> x − 38x/50 = 120
=> 12x/50 = 120
=> x = 500
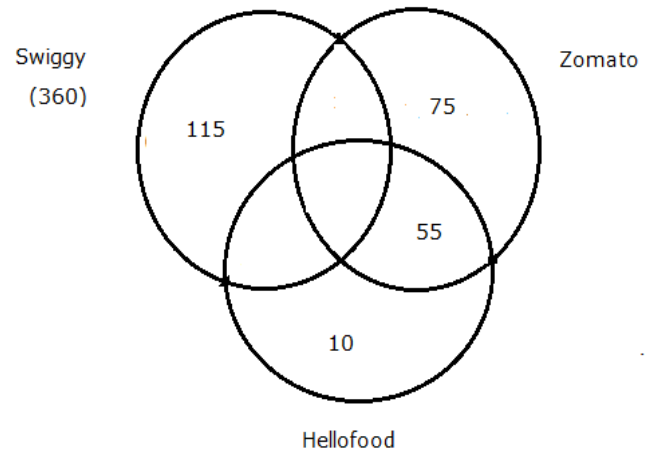
161. Answer: b)
Number of people working in Swiggy Company but not only Swiggy Company
= 360 − 115 = 240

162. Answer: e)
Total number of people = 500

163. Answer: c)
Number of people working only in Zomato Company = 75

164. Answer: e)
Number of people working in Swiggy and Zomato = 105

Number of people working in Swiggy and Hellofood but not in Zomato Company

= 360 – 115 – 105 = 140

Required percentage = 105/140 * 100

= 75%

165. Answer: d)

Number of people working in Swiggy or Zomato Company = 500 – 10 = 490

Number of people working in only Zomato or Only in Swiggy Company

= 115 + 75 = 190

Required percentage = 490/190 * 100

= 257 (17/19)%

Set 34 :

Direction (166-170):

166) Answer: c)

Let us take the additional amount invested by Abhi, Bhavan and Charlie at the end of first quarter be x, 2x, and x respectively.

Profit ratio of Abhi and Bhavan at the end of second quarter

=> (40000*3 + (40000+x)*3): (60000 *3 + (60000+ 2x)*3) = 9 : 14

(120000 +120000+3x) / (180000+180000+6x) = 9/14

(240000+3x) / (360000+6x) = 9/14

(240000*14+3x*14) = (9*360000+9*6x)

3360000 + 42x = 3240000 + 54x

120000 = 54x – 42x

120000 = 12x

=> x = 10000

Additional amount invested by Charlie at the end of first quarter = Rs. 10000

167) Answer: d)

At the end of first quarter, they invested additional amount is x, 2x and x respectively

At the end of second quarter, they invested additional amount is 4y, y and 10y respectively

At the end of third quarter, they invested additional amount is 3z, 2z and 3z respectively

The additional amount invested by Abhi at the end of first quarter, second quarter and third quarter is 5a, 2a and 3a respectively

5a = x

Charlie invested additional amount at the end of first quarter (x) = 5a

2a = 4y

a = 2y

y = a/2

Charlie invested additional amount at the end of second quarter (10y)

= 10 *(a/2)

= 5a

3a = 3z

= > a = z

Charlie invested additional amount at the end of third quarter (3z) = 3a

Required ratio = 5a: 5a: 3a = 5: 5: 3

168) Answer: a)

At the end of first quarter, they invested additional amount is x, 2x and x respectively

At the end of second quarter, they invested additional amount is 4y, y and 10y respectively

From statement I,

If the additional amount invested by Charlie at the end of first quarter and second quarter equally

X = 10y ---- (1)

From statement II,

If the additional amount invested by Bhavan at the end of first quarter is Rs.1000 more than the second quarter
$2x - y = 1000$ ---- (2)
Substitute equation (1) in equation (2), we get
$20y - y = 1000$
$19y = 1000$
$Y = 1000/19$
$X = 10*(1000/19) = 10000/19$
Hence, statement I and II together are sufficient to answer the given question.

169) Answer: d)
At the end of first quarter, they invested additional amount is x, 2x and x respectively
At the end of second quarter, they invested additional amount is 4y, y and 10y respectively
According to the question,
$= > 4y = (40/100)* x$
$= > 4y = 2x/5$
$= > 10y = x$
Profit ratio of Abhi to Bhavan at the end of second quarter
$= [40000* 3 + (40000 + x) *3 + (40000+x + 4y) *3]:$
$[60000*3 + (60000+2x) *3 + (60000+2x+y)*3]$
$= [120000 + 120000 + 3x + 120000 + 3x + 12y]:$
$[180000 +180000 + 6x + 180000 + 6x + 3y]$
$= (360000 + 6x + 12y): (540000 + 12x + 3y)$
According to the question,
$= > (360000 + 60y + 12y): (540000+120y + 3y) = 72: 115$
$= > (360000+72y) / (540000+123y) = 72/115$
$= > 41400000 + 8280y = 38880000 + 8856y$
$= > 41400000 - 38880000 = 8856y - 8280y$
$= > 576y = 2520000$
$= > y = 4375$

At the end of first quarter, they invested additional amount is x, 2x and x respectively
At the end of second quarter, they invested additional amount is 4y, y and 10y respectively
At the end of third quarter, they invested additional amount is 3z, 2z and 3z respectively
According to the question,
$= > x = 5a$
$= > 10y = 5a = > y = a/2$
$= > 3z = 3a = > z = a$
Profit ratio of Abhi, Bhavan and Charlie
$= > (40000*3 + (40000 + x)*3 + (40000 + x + 4y)*3 + (40000+x+4y +3z)*3) :$
$(60000*3+(60000+2x)*3+(60000+2x+y)*3+(60000+2x+y+2z)*3) :$
$(70000*3 + (70000+x)*3 + (70000+x + 10y)*3 + (70000+x + 10y + 3z)*3)$
$= > (480000 + 3x + 3x +12y+3x+12y+9z):$
$(720000+6x+6x+3y+6x+3y+6z):$
$(840000+3x+3x+30y+3x+30y+9z)$
$= > (480000+(9*5a)+(24*a/2)+(9*a)): (720000 +(18*5a)+(6*a/2)+(6*a)): (840000+(9*5a)+(60*a/2) +(9*a))$
$= > (480000 +45a+12a+9a): (720000+90a+3a+6a): (840000+45a+30a+9a)$
According to the question,
$= > (480000 + 66a) + (720000 + 99a) + (840000 + 84a) = 4530000$
$= > 66a + 99a + 84a = 2490000$
$= > 249a = 2490000$
$= > a = 10000$
Abhi's share $= 480000 + 66a$
$= > 480000 + 66*10000$
$= > 480000 + 660000 = Rs. 1140000$

170) Answer: e)

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171

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Set 35:
Directions (171 - 175):
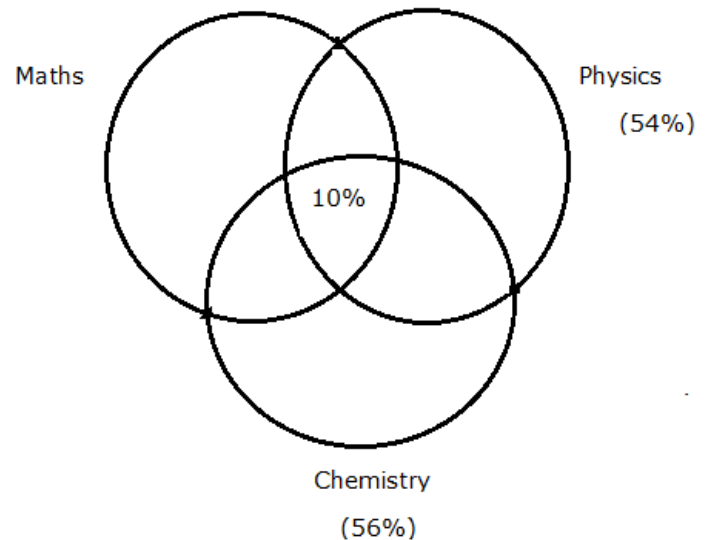

Both Maths & Physics not Chemistry
Maths — Only Maths
Physics — Only Physics
All the three
Both Maths & Chemistry not Physics
Only Chemistry
Both Physics & Chemistry not Maths
Chemistry

Boys:

Maths (56%)
Physics (49%)
10%
Chemistry (46%)

Girls:

Maths
Physics (54%)
10%
Chemistry (56%)
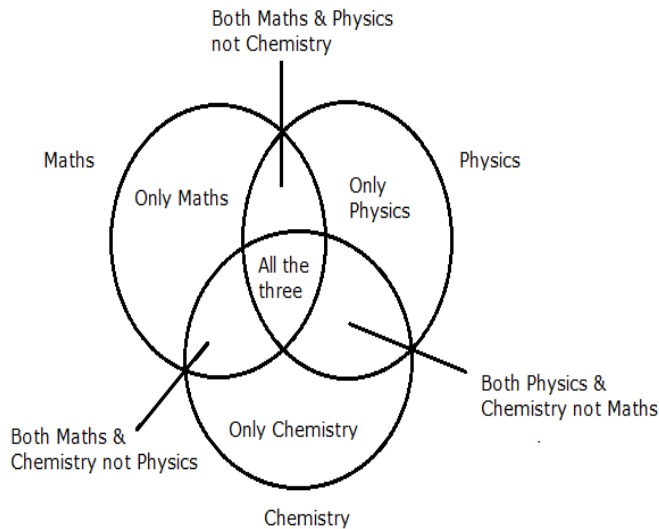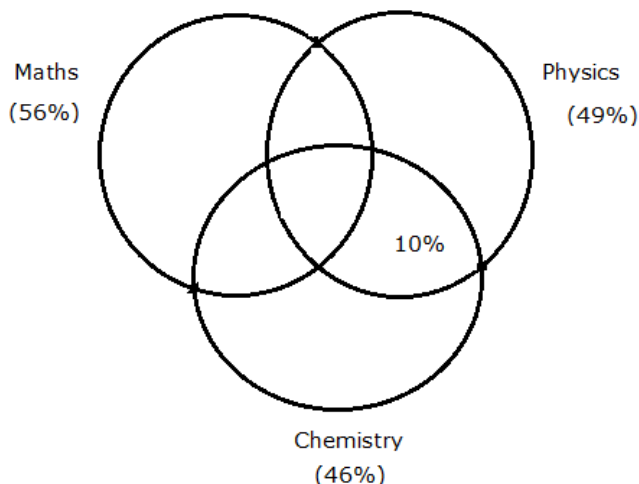
171) Answer: e)
Let us take the number of girls be x and number of boys be (1800 - x)
According to the question,
5% of (1800 - x) = 10% of x
$90 - 5x/100 = 10x/100$
$=> 90 = 15x/100$
$=> x = 600$
Number of boys = 1800 − 600 = 1200
Quantity I: A group of four students is to be formed from 12.5% of the total boys like Maths. Find the number of ways in which this can be possible.
Total boys like Maths = 56/100*1200 = 672
12.5% of the total boys like Maths = 672 * 12.5/100 = 84
Total number of ways = $84C_4$
= (84*83*82*81)/(1*2*3*4)
= 1929501
Quantity II: A group of four students is to be formed from 25% of the total girls like Chemistry. Find the number of ways in which this can be possible.
Total girls like Chemistry = 600*56/100 = 336

25% of the total girls like Chemistry = $336*25/100$ = 84

Total number of ways = $84C_4$

= $(84*83*82*81)/(1*2*3*4)$

= 1929501

Hence, Quantity I = Quantity II

172) Answer: a)

From statement I,

Let us take the number of girls be x and number of boys be (1800 - x)

According to the question,

49% of (1800 - x) - 264 = 54% of x

$882 - 49x/100 - 264 = 54x/100$

$882 + 264 = 54x/100 + 49x/100$

$=> 618 = 103x/100$

$=> 6 = x/100$

$=> x = 600$

Number of girls like at most two subjects = 600 – (10/100 * 600)

= 600 – 60 = 540

Required number of ways = $540C_2$

= $540*539/(1*2)$

= 145530

Hence statement I alone is sufficient to answer the given question.

From statement II,

Let us take the number of girls be x and number of boys be (1800 - x)

Percentage of the boys like all the three subjects is z,

According to the question,

(1800 - x) * z/100 = x * 10/100

From that we cannot find the total girls

Hence statement II alone is not sufficient to answer the given question.

173) Answer: c)

From the diagram,

(36% - x) + 5% + 15% + 10% + 16% + x + (34% -x) = 100%

116% - x = 100%

=> x = 16%
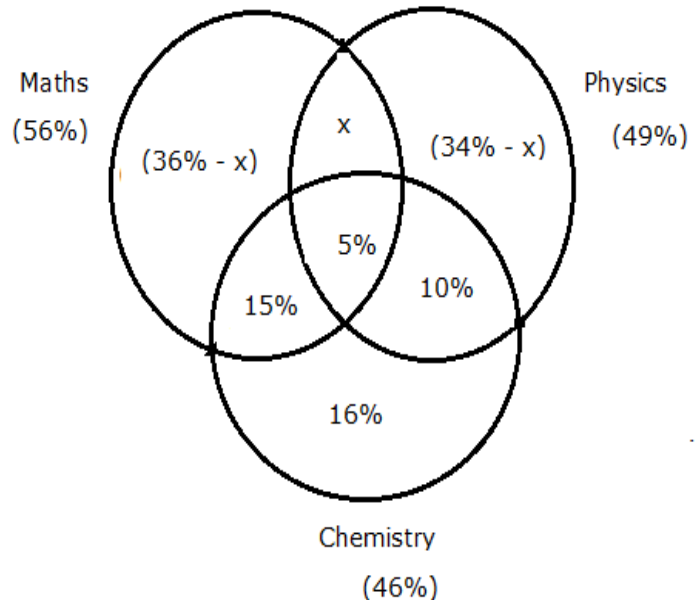
5% of total boys = 60

=> Total boys = 60 *(100/5) = 1200

Number of boys like Maths and Chemistry but not Physics = 15%

= 15/100 * 1200 = 180

Number of boys like Maths and Physics but not Chemistry = 16%

= 16/100 * 1200 = 192

Required number of ways = $180C_2 * 192C_2$

= $(180*179/1*2) * (192*191/1*2)$

= 90*179 *96*191

174) Answer: e)

Statement I: The number of boys like Chemistry is 216 more than the number of girls like Chemistry.

From statement I,

Let us take the number of girls be x and number of boys be (1800 - x)

According to the question,

46% of (1800 - x) = 216 + 56% of x

828 − 46x/100 = 216 + 56x/100

=> 828 − 216 = 56x/100 + 46x/100

=> 612 = 102x/100

=> x = 600

From that, we know only total boys and total girls. We have to know the percentage of the students like only one subject.

Hence, statement I alone is not sufficient to answer the given question.

From statement II,

From that, we didn't know the exact number of students like all the three subjects.

Hence, statement II alone is not sufficient to answer the given question.

175) Answer: c)

10% of total girls = 60

=> Total girls = 60 *(100/10) = 600

Total boys = 1800 – 600 = 1200

From statement I,

Total number of girls like more than one subject = 600 − 336 = 264

Hence, statement I alone is not sufficient to answer the given question.

Statement II: 5% of boys like all the three subjects and 16% of the boys like only Chemistry.

From statement II,

From the diagram,

(36% - x) + 5% + 15% + 10% + 16% + x + (34% -x) = 100%

116% - x = 100%

=> x = 16%
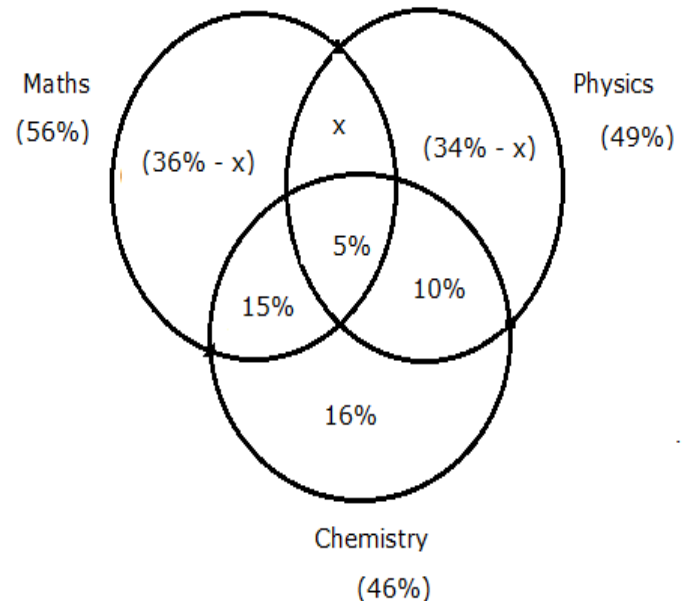
5% of total boys = 60

=> Total boys = 60 *(100/5) = 1200

Total boys like only one subject

= [(36% - 16%) + 16% + (34% - 16%)] * 1200

= (20% + 16% + 18%) *1200

= 54/100 * 1200

= 648

Hence, statement II alone is not sufficient to answer the given question.

From statement I and II,

Number of girls like more than one subject = 264

Number of boys like only one subject = 648

Required ratio = 264: 648

= 11: 27

Hence, statement I and II are necessary to answer the given question.

Set 36 :
Directions (176 - 180):
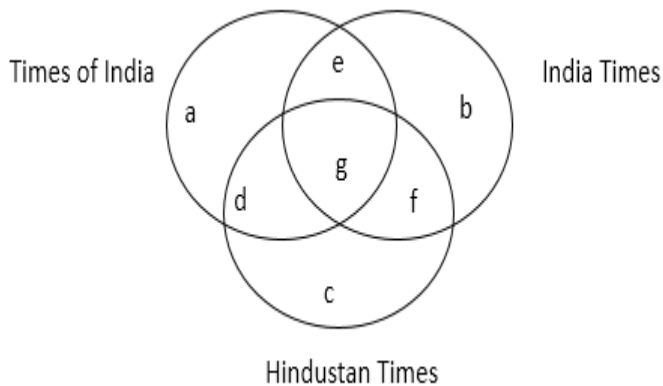
a + b + c + d + e + f + g = 2500 ----------- (i)
d + e + f = 15/100 x 2500 = 375 ------------ (ii)
g = 10/100 x 2500 = 250 ------------- (iii)
From (i), (ii) and (iii)
a + b + c + 375 + 250 = 2500
=> a + b + c = 2500 – 625
=> a + b + c = 1875
a + e = 30/100 x 2500 = 750 ------------ (iv)
d + g = e + g = f + g
=> d = e = f -------- (v)
From (ii) and (v)
d + d + d = 375
=> 3d = 375
=> d = 125 = e = f ---------- (vi)
From (iv) and (vi)
a + 125 = 750
=> a = 750 – 125
=> a = 625 ------------ (vii)
b + e + f + g = 35/100 x 2500
=> b + 125 + 125 + 250 = 875
=> b = 875 – 500
=> b = 375
c = b + e + f + g

=> c = 875
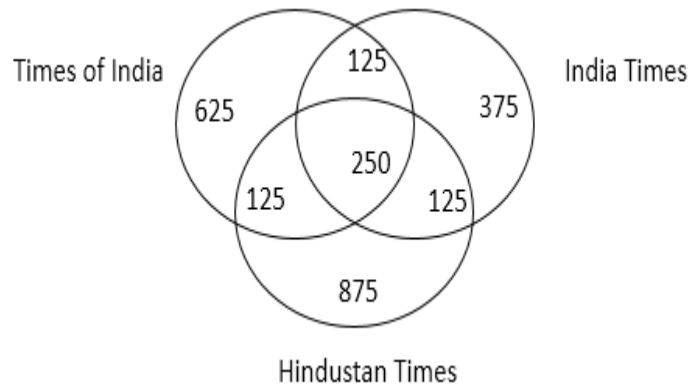
176) Answer: b)
Total number of males = 3/5 x 2500 = 1500
Total number of females = 2/5 x 2500 = 1000
Required percentage = [(875 + 125)/(375 + 125)] x 100
= (1000/500) x 100
= 200%

177) Answer: c)
Total number of males = 3/5 x 2500 = 1500
Total number of females = 2/5 x 2500 = 1000
Required ratio = 625: 875
= 5:7

178) Answer: c)
Total number of males = 3/5 x 2500 = 1500
Total number of females = 2/5 x 2500 = 1000
Number of female employees who like Hindustan
Times but not Times of India
= 12/25 *(875 + 125)
= 12/25 x 1000
= 480
Required percentage = 480/1000 x 100 = 48%

179) Answer: b)
Total number of males = 3/5 x 2500 = 1500

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Total number of females = 2/5 x 2500 = 1000
Number of female employees who like only one newspaper
= 7/15 x (625 + 375 + 875)
= 7/15 x 1875
= 875
Number of female employees who like more than one newspaper
= 2/5*(125 + 125 + 125 + 250)
= 2/5 x 625
= 250
Required sum = 875 + 250 = 1125

180) Answer: d)
Total number of males = 3/5 x 2500 = 1500
Total number of females = 2/5 x 2500 = 1000
Total number of temporary employees who like India Times
= (100 – 40)/100 * (125 + 250 + 125 + 375)
= 60/100 x 875
= 525
Total number of temporary employees who like only Times of India
= (100 – 60)/100 * 625
= 40/100 x 625
= 250
Required difference = 525 – 250 = 275

Set 37:
Direction (181 - 185):
Paragraph – 1:
Two years ago Ramesh age = x
Two years ago Kavin age = 5x
Difference always same so 4x = 48
X = 12
Present age of Ramesh = x + 2 = 12 + 2 = 14 years

Present age of Kavin = 5x + 2 = 5 * 12 + 2 = 62 years
Sum (L) = 14 + 62 = 76 years
= > L = 76
Paragraph – 2:
MP of laptop = Rs.100x
SP in shop - 1
= 100x* (100 - (76/2 - 8))/100
= 100x * 70/100 = 70x
70x = 14000
X = 200
MP= 100 * 200 = 20000
SP in shop - 2 = 14000 - 5000
20000 * 90/100 * (100 - K)/100 = 9000
18000 * (100 - K) = 900000
(100 - K) = 900000/18000 = 50
100 – K = 50
K = 50%
Paragraph – 3:
Profit share of Vivek, Ram and Anthuvan
= (1600*12): ((3200*4) + (1600*8)): ((4800*6) + (1600*6))
=19200:25600:38400=3:4:6
Difference between the share of Vivek and Ram (M) = 1/13*13000 = 1000
M = Rs.1000
Paragraph – 4:
N=1000*10*10/100*100=Rs.10
N = Rs.10
Paragraph – 5:
A = 1/10
B = 1/20
LCM of (10, 20) = 20 units
A fill the tank in one hour = 2 units
B emptied the tank in one hour = 1 unit
A opened 5 hours = 2 * 5 = 10 units of tank filled.
B can empty in (O) = 10/1 = 10 hours
O = 10 hours

181) Answer: a)
K = 50%

182) Answer: c)
From quantity I,
1000 * 10 = 10000
From quantity II,
76 * 50 = 3800
Hence, Quantity I > Quantity II

183) Answer: a)
N = Rs. 10

184) Answer: d)
Sum = 76 + 50 = 126
Required percentage = 100 * 126/1000 = 12.6%

185) Answer: a)
Average = (76 + 50 + 1000 + 10 + 10)/5 =1146/5 =
229.2

Set 38 :
Direction (186-190):
186) Answer: b)

Girls	No. of days	Boys	No. of days
Anima	10	Ajay	20
Nishi	12	Vinay	16
Ishita	8	Kiran	12
Nimi	15	Murari	15

Let, the required number of days = n
2/10 + 2/8 + n/15 = 1
=> n/15 = 1 – 1/5 – ¼

=> n/15 = (20 – 4 – 5)/20
=> n = 15 x 11/20
=> n = 33/4 days

187) Answer: d)

Girls	No. of days	Boys	No. of days
Anima	10	Ajay	20
Nishi	12	Vinay	16
Ishita	8	Kiran	12
Nimi	15	Murari	15

Work completed in 2 days = 1/15 + 1/20
= (4 + 3)/60
= 7/60
Work completed in 2 x 8 days = 7/60 x 8
=> Work completed in 16 days = 56/60
Remaining work = 1 – 56/60
= (60 – 56)/60
= 4/60 = 1/15
= 1/15 which is completed by Nimi in 1 day
Required number of days = 16 + 1 = 17 days

188) Answer: b)

Girls	No. of days	Boys	No. of days
Anima	10	Ajay	20
Nishi	12	Vinay	16
Ishita	8	Kiran	12
Nimi	15	Murari	15

Efficiency of Nishi = 1/12
Efficiency of Vinay = 1/16
Required ratio = 1/12: 1/16 = 4:3

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189) Answer: c)

Girls	No. of days	Boys	No. of days
Anima	10	Ajay	20
Nishi	12	Vinay	16
Ishita	8	Kiran	12
Nimi	15	Murari	15

Let, the required number of days = n

$n \times (1/2 \times 1/12 + 2/15) = 1$

$=> n \times (1/24 + 2/15) = 1$

$=> n \times (5 + 16)/120 = 1$

$=> n = 120/21$ days

190) Answer: a)

Girls	No. of days	Boys	No. of days
Anima	10	Ajay	20
Nishi	12	Vinay	16
Ishita	8	Kiran	12
Nimi	15	Murari	15

Let, the required number of days = n

$n \times (1/10 + 1/12 + 1/8 + 1/15) = 1$

$=> n \times (12 + 10 + 15 + 8)/120 = 1$

$=> n = 120/45$

$=> n = 8/3$ days

Set 39 :
Direction (191-195):

191) Answer: c)

Let the speed of entire journey be x

Distance travelled on day 1

380-200=180

$180/(x+10) + 200/(x-10)$

On return journey

$180/(x-10) + 200/(x+10)$

Difference of time is 12 min

$\{180/(x+10) + 200/(x-10)\} - \{180/(x-10) + 200/(x+10)\} = 12/60$

$20/(x - 10) – 20/(x + 10) = 1/5$

$400/(x^2 - 100) = 1/5$

$=> x^2 − 100 = 2000$

$=> x^2 = 2100$

$=> x = 46$ (Approximately)

192) Answer: e)

The only way to do such question quickly and accurately is to pick options

Let the speed of vehicle B be x

In case 1:

$300/(x+20) + 150/((2/3)*(x+20)) + 2$

In case 2:

$150/x + 300/((125/100)*x)+1$

As time will be equal so value of case 1 and case 2 will be equal

$300/(x+20) + 150/((2/3)*(x+20)) + 2 = 150/x + 300/((125/100)*x)+1$

Option (a):

X = 30

$300/(30+20) + 150/((2/3)*(30+20)) + 2 = 150/30 + 300/((125/100)*30)+1$

$6 + 4.5 + 2 = 5 + 8 + 1$

$=> 12.5 = 14$

LHS ≠ RHS

Option (b):

X = 40

$300/(x+20) + 150/((2/3)*(x+20)) + 2 = 150/x + 300/((125/100)*x)+1$

$300/(60) + 150/(2/3*60) + 2 = 150/40 + 300/(125/100*40) + 1$

$5 + 3.75 + 2 = 3.75 + 6 + 1$

$=> 10.75 = 10.75$

L.H.S = R.H.S
Option (c):
X = 60
300/(x+20) + 150/((2/3)*(x+20)) +2 = 150/x + 300/((125/100)*x)+1
300/60 + 150*3/120 + 2 = 150/40 +300*4/(5*40) + 1
7+ 450/120 = 150/40 + 7
L.H.S = R.H.S
Option (d):
X = 50
300/(x+20) + 150/((2/3)*(x+20)) +2 = 150/x + 300/((125/100)*x)+1
300/70 + 150/(2/3*70) + 2 = 150/50 + 300/(125/100*50) + 1
= > 4.29 + 3.21 + 2 = 3 + 4.8 + 1
= > 9.5 = 8.8
LHS ≠ RHS

193) Answer: b)
For 1st 24 minutes the distance travelled
24/60*90=36 km
For next 24 minutes
24/60*85=34km
For next 24 minutes
24/60*80=32km
For next 24 minutes
24/60*75=30 km
For next 24 minutes
24/60*70=28
So total time taken to cover 160 km is 24*5/60 is 2 hrs

194) Answer: b)
Let the distance travelled be D and time taken be t
According to question
D/60=t+1 = > D = (t + 1) * 60
D/80=t-2 = > D = (t - 2) * 80
As distance covered is same on equating

(t + 1) * 60 = (t - 2) * 80
3t + 3 = 4t – 8
t=11 hrs
D/60=11+1
D=720 km

195) Answer: d)
Time taken on day 1
150/50=3 hrs
Time on day 2
3*2/3=2 hrs
Total time = 5hrs
Additional time= 12 min
Halt on day 2
12*1/6=2 min

Set 40:
Direction (196-200):
196) Answer: c)
Rahul runs for 15 minutes at a speed of 5 km/hr and 25 minutes at a speed of 9 km/hr
Total distance covered by Rahul on treadmill
= 15/60 * 5 + 25/60 * 9 = 1.25 + 3.75 = 5 km
A = 5 km

197) Answer: d)
P2 can complete work in = 6 * 5/4 = 7.5 hours
P1 and P2 together can complete total work in
= 1/6 + 1/7.5 = 1/6 + 2/15 = (10+8)/60 = 3/10
= 3 (1/3) hours
= > P1 and P2 together can complete 75% work in
= 10/3 * 75/100 = 2.5 hours
They finish work at 12.30 pm.
They start their work at 12.30 – 2.30 = 10.00 am
B = 10.00 am

198) Answer: a)

P2 can complete work in = 6*5/4 = 7.5 hours

Rahul and P2 can complete same work in 3 hours

Rahul can complete same work in = (1/3 − 1/7.5)

= (5 − 2)/15 = 3/15 = 1/5

= 5 hours

Ratio of efficiency of Rahul and P1 is = 1/5: 1/6 = 6: 5

C = (6 - 5)/5 * 100 = 20%

199) Answer: c)

Distance between his house and his office is 45 km

Speed = 45/1.5 = 30 km/hr

Upstream speed is 3 km/hr

Time to reach home (i.e.) D = 45/27 = 1(2/3) hours

200) Answer: b)

Each friend has 2 dices so there are total 36 outcomes by one friend.

If either Rahul or Aman throws their dices, then there are total (36 + 36) outcomes.

So, E = 36 + 36 = 72

Set 41:

Direction (201-205):

Amount invested in Simple interest:

Ajay:

Ajay Invested amount = Rs.44000

Time = 5 years

Rate of interest = 6%

Mohan:

Mohan's invested amount = Rs. 44000 * (120/100)

= Rs. 52800

Time = 3 years

Rate of interest = 8%

Suresh:

Suresh's invested amount = 52800/6*5 = Rs.44000

Time = 6 years

Rate of interest = 5%

Vijay:

Vijay's invested amount = 52800 * 90/100 = Rs.47520

Time = 10 years

Rate of interest = 4%

Rakesh:

Rakesh's invested amount = 52800 + 200 = Rs.53000

Time = 8 years

Rate of interest = 5%

Amount invested in Compound interest:

Suresh:

Amount invested = 44000/12 *11 = Rs.48000

Time = 2 years

Rate of interest = 5%

Ajay:

Amount invested = 44000 *(90/100) = Rs.39600

Time = 3 years

Rate of interest = 10%

Mohan:

Amount invested = 48000 – 8000 = Rs.40000

Time = 2 years

Rate of interest = 6%

Vijay:

Amount invested = (48000 + 40000)/2 = 88000/2 = Rs.44000

Time = 3 years

Rate of interest = 4%

Rakesh:

Amount invested = 39600 – 9600 = Rs.30000

Time = 2 years

Rate of interest = 8%

Persons	P (in Rs.)	Rate%	Time (in years)
Simple Interest			
Ajay	44000	6	5
Vijay	47520	4	10
Mohan	52800	8	3
Rakesh	53000	5	8
Suresh	44000	5	6
Compound Interest			
Ajay	39600	10	3
Vijay	44000	4	3
Mohan	40000	6	2
Rakesh	30000	8	2
Suresh	48000	5	2

201) Answer: c)
We know that
SI = (P x r x t)/100
=> SI = (44000 x 6 x 5)/100
=> SI = Rs.13200
We know that
CI = P x $(1 + r/100)^t$ - P
=> CI = 39600 x $(1 + 10/100)^3$ – 39600
=> CI = 39600 x 110/100 x 110/100 x 110/100 – 39600
=> CI = 52707.6 – 39600
=> CI = 13107.6
Required sum = 13200 + 13107.6 = Rs.26307.6

202) Answer: b)
We know that
Amount on SI = (P x r x t)/100 + P
= (47520 x 4 x 10)/100 + 47520
= 19008 + 47520

= Rs.66528
We know that
Amount on CI = P x $(1 + r/100)^t$
= 44000 x $(1 + 4/100)^3$
= 44000 x 104/100 x 104/100 x 104/100
 = Rs.49494.016
Required difference = 66528 – 49494.016 =
Rs.17033.984

203) Answer: a)
We know that
SI = (P x r x t)/100
= (52800 x 8 x 3)/100
= Rs.12672
We know that
CI = P x $(1 + r/100)^t$ - P
= 40000 x $(1 + 6/100)^2$ – 40000
= 40000 x 106/100 x 106/100 – 40000
= 44944 – 40000
= Rs.4944
Required percentage = 12672/4944 x 100
= 256.31%
= 256% approx.

204) Answer: e)
We know that
Amount on SI = (P x r x t)/100 + P
= (53000 x 5 x 8)/1000 + 53000
= 21200 + 53000
= Rs.74200
We know that
Amount on CI = P x $(1 + r/100)^t$
= 30000 x $(1 + 8/100)^2$
= 30000 x 108/100 x 108/100
= Rs.34992
Required percentage = (74200 – 34992)/34992 x 100
= 39208/34992 x 100

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= 112.04%

= 112% approx.

205) Answer: d)

Amount invested by Suresh on SI = 44000 + 10000 = Rs.54000

We know that

Amount on SI = (P x r x t)/100 + P

= (54000 x 5 x 6)/100 + 54000

= 16200 + 54000

= Rs.70200

Amount invested by Suresh on CI = 48000 + 20000 = Rs.68000

We know that

Amount on CI = P x $(1 + r/100)^t$

= 68000 x $(1 + 5/100)^2$

= 68000 x 105/100 x 105/100

= Rs.74970

Required sum = 70200 + 74970 = Rs.145170

Set 42:

Direction (206-210):

206) Answer: b)

According to the question,

Radius of sphere shaped cake=21/2

Thus radius of cylinder shaped cake=21/2

Also we have height of the cylinder shaped cake=8 cm

Hence required ratio = (4/3 πr^3+ πr^2h): (4/3 πr^3)

= (4/3 *r + h): 4/3*r

= (8 + 4/3 * 21/2): (4/3*21/2)

= 11: 7

207) Answer: c)

According to the question,

Volume of the new cake = 1/3 πr^2h + 2/3 πr^3 = 7084

7084 = 1/3 * 22/7 * (7 * 7) * h + 2/3 * 22/7 * (14*14*14)

=> 7084 = 154/3 * h + 17248/3

=> 21252 = 154h + 17248

=> 21252 − 17248 = 154 * h

=> 4004 = 154* h

=> h = 26 cm

208) Answer: d)

Volume of the cuboid shaped cake= l * b * h

= 14 * 28 * 22 = 8624 cm^3

Volume of cone shaped cake= 1/3 * πr^2h

= 1/3 * 22/7 * 7 * 7 * 21 = 1078 cm^3

Hence required percentage = [(8624 - 1078)/1078] *100

=700 % more

209) Answer: e)

Given that height of the cylinder shaped cake=8 cm

Then height of the newly formed cake=2*8=16 cm

Curved surface area of the cylinder = 2πrh = 44* 8

=> 2 * 22/7 * r * 16 = 44 * 8

=> r = 7/2 cm

210) Answer: d)

Slant height = $\sqrt{(r^2 + h^2)}$

= $\sqrt{(21^2 + 28^2)}$ = $\sqrt{(441 + 784)}$

= $\sqrt{1225}$ = 35 cm

We know that,

Total surface area of the cone = πr*slant height + πr^2

=22/7 * 21 * 35 + 22/7 * 21 * 21

= 2310 + 1386

=3696 cm^2

Set 43:

Direction (211-215):

211) Answer: c)

No of students in section III from school C = x

Total number of students in school C = x + 8 + 12 = 20 + x

Number of possible ways = $8C_1 * 12C_1 * xC_1 * (20 + x - 3) C_1 = 25920$

$8 * 12 * x * (17+x) = 25920$

$17x + x^2 = 270$

$=> x^2 + 17x - 270 = 0$

$=> x^2 - 10x + 27x - 270 = 0$

$=> x (x - 10) + 27 (x - 10) = 0$

$=> x = 10, - 27$ (Eliminate the –Ve value)

Number of students in section III from school C = 10

212) Answer: d)

Number of students in section III from school E = y

Total number of students in school E = (y + 12 + 18) = y + 30

Number of possible ways = $yC_1 * 30C_1 + yC_2 = 195$

$=> y * 30 + (y*(y-1)/(1 *2)) = 195$

$=> 30y + (y^2 - y)/2 = 195$

$=> 60y + y^2 - y = 390$

$=> y^2 + 59y - 390 = 0$

$=> y^2 + 65y - 6y - 390 = 0$

$=> y (y + 65) - 6 (y + 65) = 0$

$=> (y + 65) (y - 6) = 0$

$=> y = 6, -65$ (Eliminate –Ve value)

Total number of students in school E = 30 + 6 = 36

Required number of ways = $12C_2 * 18C_1 * 6C_2$

$= (12*11 / 1*2) *18 *(6*5 / 1*2)$

$= 6*11*18*3*5$

$= 17820$

213) Answer: b)

From I,

Number of students in section II from school A = n

Number of handshakes = $nC_2 = 105$

$=> [n*(n -1)] / (1 * 2) = 105$

$=> n^2 - n = 210$

$=> n^2 - n - 210 = 0$

$=> n^2 - 15n + 14n - 210 = 0$

$=> (n - 15) (n - 14) = 0$

$=> n = 15, -14$ (Eliminate –Ve value)

From statement I, We have to find only number of students in section II from school A. We can't find the total number of students.

Hence, statement I alone is not sufficient to answer the given question.

From II,

Total number of students in school A = x

Number of handshakes = $xC_2 = 780$

$=> x * (x - 1)/1*2 = 780$

$=> x^2 - x = 780*2$

$=> x^2 - x - 1560 = 0$

$=> x^2 - 40x + 39x - 1560 = 0$

$=> x (x - 40) + 39 (x - 40) = 0$

$=> (x - 40) (x + 39) = 0$

$=> x = 40, -39$ (Eliminate –Ve value)

Total number of students in school A is 40.

Hence, Statement II alone is sufficient to answer the given question.

214) Answer: a)

Number of students in section II from school B = x

Number of students in section III from school B = $75/100 * x$

$= 3x/4$

Total number of students in section II and III from school B = 20 – 6 = 14

$=> x + 3x/4 = 14$

$=> 7x/4 = 14$

$=> x = 8$

Number of students in section III from school B = $8 * 75/100 = 6$

Quantity I:

Number of ways = $6C_1*8C_1*6C_1*(20-3)C_2$

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= 6 * 8 * 6 *(17*16/1*2)

= 6*8*6*17*8

= 39168

Quantity II: In committee Q, five students is to be formed from school B such that committee contains at least one student from section I.

Number of ways = $6C_1*14C_4 + 6C_2*14C_3 + 6C_3*14C_2 + 6C_4*14C_1 + 6C_5$

= 6006 + 5460 + 1820 + 210 + 6

= 13502

Hence, Quantity I > Quantity II

215) Answer: d)

Number of ways in school D = $8C_3$

= 8*7*6 / 1*2*3 = 56

Number of ways in school B = $6C_3$

= 6*5*4 / 1*2*3 = 20

Required percentage = (56/20) * 100 = 280%

Set 44:

Direction (216-220):

216) Answer: a)

Quantity I:

LCM of 5, 10, 20, 40, 40 = 40

Total work = 40 units

Sahil's per day work = 40/5 = 8 units

Jatin's per day work = 40/10 = 4 units

Gagan's per day work = 40/20 = 2 units

Disha's per day work = 40/40 = 1 unit

Karan's per day work = 40/40 = 1 unit

Work completed in 5 days work = 8 + 4 + 2 + 1 + 1 = 16 units

Work completed in 10 days = 32

Remaining = 40 – 32 = 8 units

Remaining (8 units) work completed by Sahil in one day

Total number of days = 10 + 1 = 11 days

(Or)

Let total work be 100%

Let one day work of Sahil = 1/5 => 20%

Let one day work of Jatin = 1/10 => 10%

Let one day work of Gagan = 1/20 => 5%

Let one day work of Disha = 1/40 => 2.5%

Let one day work of Karan = 1/40 = 2.5%

Work in 5 days = 20% + 10% + 5% + 2.5% + 2.5% = 40%

Work in 10 days = 80%

Remaining work= 100% - 80% = 20%

Remaining (20%) work completed by Sahil in one day

So total number of days = 10 + 1= 11 days

Quantity II:

Sahil has to complete (100% - 40% = 60%) in

Work   Days

100%   15

60%   ?

60% * 15 = 100% *?

? = 9 days

Hence, Quantity I > Quantity II

217) Answer: a)

Quantity I:

LCM of 20, 15 and 12 = 60

Total work = 60 units

60% of total work = 60/100 * 60 = 36 units

Gagan's per day work = 60/15 = 4 units

Disha's per day work = 60/12 = 5 units

Number of days to complete 60% of work by Gagan and Disha together

= 36/9 = 4 days

Total wage = 3200/40 * 100 = Rs. 8000

60% of total wage = 8000 * 60/100 = 4800

Gagan and Disha's per day wage = 4800/4 = Rs. 1200

Quantity II:

Ratio of efficiency of Sahil and Jatin = 1/15 : 1/9 =

> 3x: 5x

So, efficiency of Priya = 3x*120/100= > 3.6x

Efficiency of Kapil = 3.6x*130/100 = 4.68x

Efficiency of Reshma = 4.68x*150/100 = 7.02x

Sum of efficiency=3x+5x+3.6x+4.68x+7.02x

Remuneration received by Reshma

= (total remuneration/total efficiency) * Reshma efficiency

= (1500/23.3x)*7.02x = > Rs. 452

Hence, Quantity I > Quantity II

218) Answer: c)

Quantity I:

Let the efficiency of Jatin = 5x

So, efficiency of Sahil= 5x*1.2 => 6x

And efficiency of Gagan will be = 5X * 0.8 => 4x

Efficiency of all three working together = 5x + 6x + 4x => 15x

Disha takes double the time of Jatin, Gagan and Sahil working together so the efficiency will be half of them working together.so

Efficiency of Disha =15x/2

Ratio of efficiency of Sahil, Jatin, Gagan and Disha = 6: 5: 4: 7.5

Let one day work of Sahil, Jatin, Gagan and Disha be 6a, 5a, 4a and 7.5a respectively

Total work will be =7.5a*6 + (5a + 6a + 4a)*10 => 195a units

Jatin and Disha start to work on alternate days starting with Disha

First day work of Disha =7.5a

Second day work of Jatin=5a

Two day work= 7.5a + 5a = 12.5a

30 day work= 12.5a* 15 = 187.5a units

Remaining work= 195a-187.5a => 7.5a

Remaining work done by Disha 7.5a/7.5a= 1 day

Total number of days = 31 days

Quantity II:

Total days to complete work =t

10/30 + (t-5)/25 + t/42 = 1

(350 + 42(t - 5) + 25t)/1050 = 1

(350 + 42t – 210 + 25t)/1050 = 1

(140 + 67t)/1050 = 1

140 + 67t = 1050

67t = 910

T = 910/67 = > 13.58 days

Hence, Quantity I > Quantity II

219) Answer: d)

Time taken to complete Project - A = A

1/A = 1/5 + 1/10 + 1/20 + 1/40 + 1/40

1/A = (8 + 4 + 2 + 1 + 1)/40 = 16/40

A = 40/16 = 5/2 = 2.5 days

Time taken to complete Project - B = B

1/B = 1/20 + 1/18 + 1/15 + 1/12 + 1/10

1/B = (9 + 10 + 12 + 15 + 18)/180

B = 180/64

= > B = 45/16 = 2 (13/16) days

Time taken to complete Project - C = C

1/C = 1/15 + 1/9 + 1/8 + 1/8 + 1/5

1/C = (24 + 40 + 45 + 45 + 72)/360

= > C = 360/226 = 1 (67/113) days

Time taken to complete Project - D = D

1/D = 1/30 + 1/42 + 1/25 + 1/9 + 1/10

1/D = (105 + 75 + 126 + 350 + 315)/3150

D = 3150/971 = 3 (237/971) days

So Project - D will finish last.

220) Answer: c)

Project B:

LCM of 20, 15 and 10 = 60

Karan's per day work = 60/10 = 6 units

Gagan's per day work = 60/15 = 4 units

Sahil's per day work = 60/20 = 3 units

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Total work completed by Karan and Gagan = 60/10 = 6 days

Project D:

LCM of 30, 25 and 10 = 150

Karan's per day work = 150/10 = 15 units

Gagan's per day work = 150/25 = 6 units

Sahil's per day work = 150/30 = 5 units

Total work completed by Karan and Gagan = 150/21 = 50/7 = 7 (1/7) days

So, Project – B will be finished in first 6 days

Number of units completed by Karan and Gagan in Project – D at the end of 6th day

= 21 * 6 = 126 units

Remaining = 150 – 126 = 24 units

Remaining units completed by Karan, Gagan and Sahil together

= 24/(15 + 6 + 5)

= 24/26 = (12/13) days

Total number of days = (6 * 2) + (12/13) = 12 (12/13) days

Set 45:

Direction (221-225):

221) Answer: b)

Total surface area of frustum = $\pi l_1 (R + r) + \pi R^2 + \pi r^2$

Radius of cylinder:

Surface area of cylinder/volume of cylinder=$2\pi r(r + h)/\pi r^2 h$

$2\pi r(r + h) / \pi r^2 h => 2(r + h)/r*h$

$2(r+14)/(r*14) = 924/2156$

$(r +14)/(r*14) = 462/2156$

$r+14/r = 462/154$

$154r+154*14 = 462r$

$154*14=462r-154r$

$308r=2156$

$=> r => 7cm$

Radius of hemisphere:

Volume of hemisphere = 19404 cm^3

$2\pi R^3/3 = 19404$

R = 21 cm

Height of cone:

Volume of cone = $(1/3)* \pi r^2 h$

$(1/3)*(22/7) *21*21*h=12936$

$=> h = 28$ cm

Slant height of frustum:

$L^2= h^2+(R-r)^2$

$L^2=28^2 + (21-7)^2 => 784 + 196 => 980$

L = 31 cm (round off 31.30)

S.A of frustum = $(22/7)*31*(21 + 7) + (22/7)*441 + (22/7)*49$

= 2728 + 1386 + 154

= 4268 cm^2

Cost o paint = 4268 * 5

=Rs.21340

222) Answer: d)

Cube:

Surface area of cube=$6a^2$ =726cm^2

Cost of paint=726*8=>5808

Labour charges=15*85=> Rs.1275

Total expenses=1275+5808=> Rs.7083

Cylinder

Cost of paint = Surface area of cylinder * cost of paint per cm^2

924*12 =>11088

Cost of labour=time taken to paint the surface *wage per day

25*120=> Rs.3000

Total expenses = Cost of paint + cost of labour

11088+3000=>Rs.14088

% increase=7005/14088 * 100

=7005/14088 * 100

=49.7%

223) Answer: a)

CSA of Cone

Volume of cone = $(1/3)* \pi r^2 h$

$(1/3)*(22/7)21*21*h=12936$

$=> h = 28$

Slant height of cone $=> L^2=r^2+h^2$

$L^2=28^2+21^2$

$L = 35$

CSA of cone= $\pi rl => (22/7)*21*35 =>2310$ cm^2

CSA of Cylinder

Surface area of cylinder/volume of cylinder=$2\pi r^2+2\pi rh/ \pi r^2 h$

$2\pi r^2+2\pi rh/ \pi r^2 h= 924/2156$

$2(r+14)/(r*14) = 924/2156$

$2(r+14)/(r*14) = 924/2156$

$(r +14)/(r*14) = 462/2156$

$r+14/r=462/154$

$154r+154*14=462r$

$154*14=462r-154r$

$308r=2156$

$=> r = 7cm$

CSA of cylinder=$2\pi rh => 2*(22/7)*7*14$

$=616$ cm^2

CSA of Hemisphere

TSA=$3 \pi r^2 => 4158$

CSA=$2 \pi r^2$

CSA of hemisphere= $(4158/3 \pi r^2)* 2 \pi r^2 => 2772$ cm^2

Paint cost

For cone = 2310*6 =>Rs.13860

For cylinder=616*12 =>Rs.7392

For hemisphere= 2772*5 =>Rs.13860

Total paint cost= 13860 + 7392 + 13860 => Rs.35112

Labour cost

For Cone=7*50*0.8 => Rs.280

For Cylinder=25*120*0.8 => RS.2400

For Hemisphere=4*180*0.8=> Rs.576

Total labour cost=280+2400+576 => Rs.3256

Total cost = paint cost + labour cost

= Rs.3256 + Rs.35112 => Rs.38368

224) Answer: c)

Volume of sphere

Volume of sphere = $(4/3) \pi r^3$

$=4/3*22/7*12*12*12 =>7241$ cm^3 (approx)

Volume of cube

Surface area of cube=$6a^2$

$6a^2=726$cm^2

$a^2=121 => a=11$

Volume of cone= $a^3=11^3 => 1331$ cm^3

Total volume= volume of sphere + volume of cube + volume of cylinder

= 7241 + 1331 + 2156 => 10728 cm^3

Radius of new sphere

Volume of new sphere=n*(volume of new sphere)

$10728 = n*(4/3)*(22/7)*r^3$

$10728 =8*(4/3)*(22/7)* r^3$

$r^3= 320$

r= 7 cm (approx)

Radius of small identical sphere/radius of cylindrical jar = 1/3

7/radius of cylindrical jar=1/3

Radius of cylindrical jar=21 cm

Height of cylindrical jar/ radius of cylindrical jar = 2/3

Height of cylindrical jar/21 = 2/3

Height of cylindrical jar=14 cm

Volume of cylindrical jar

Volume of cylindrical jar=$\pi r^2 h => 22/7*21*21*14$

$=19404$ cm^3

225) Answer: b)

Height of cylinder =14 cm (given)

Radius of cone = 21 cm (given)

Radius of sphere= 12 cm (given)

Length of cuboid / height of cylinder = 6/7

Length of cuboid /14 = 6/7

Length of cuboid = >12 cm

Radius of cone / breadth of cuboid =3/1

21/ breadth of cuboid = 3/1

Breadth of cuboid => 7 cm

Radius of sphere / height of cuboid = 3/2

12/ height of cuboid =3/2

Height of cuboid => 8cm

Volume of the cuboid = l * b * h = 12 * 7 * 8 = 672 cm^3

Set 46:

Direction(226-230):

Total employees = 400

Employees working in content team =30%

Employees working in only technical team =20%

Employees working in all three department = 5%

Percentage of employees working in technical and content team but not in HR
 = 40/400 *100=10%

Employees working in technical team only/ employees working in HR team only
= 5/9

20/ employees working in only HR team = 5/9

Employees working in only HR team = 144

Percentage of employees working in only HR team =36%

Sum of employees who work in technical and HR both but not content and the one works in content and HR team but not in technical team is =60/400*100 = 15%

Employees working in content and hr but not in technical team is 20% of people working in all three team = 5%*0.2 = 1%

So employees working in technical and HR team but not in content team
= 15% - 1% => 14%

Technical Team — 20%, 10%
Content Team — 14%
5%
14%, 1%
36%
HR Team
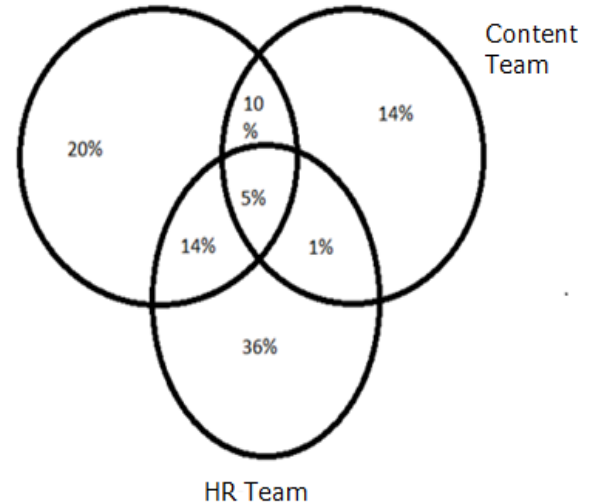
226) Answer: a)

Salary per hour:

For only content team

Salary per day

5250/5 =1050

Salary per hour 1050/(35/5) = Rs.150

No of employees in only content team = 14% of 400= 56

56*150= Rs.8400

For only technical team

Salary per day

9000/5=1800

1800/(45/5) = Rs. 200

No of employees in only technical team = 20% of 400 = 80

80*200= Rs.16000

For HR team only

Salary per day

9600/5=1920

1920/(40/5) = Rs.240

No of employees in HR team only=36% of 400=144

144*240= Rs.34560

For HR and Content team only not technical

(240+150)/2 = 195
No of employees=1% of 400=4
4*195 =Rs.780
For Technical and content team but not HR team
(150+200)/2 = Rs.175
No of employees=10% of 400=40
40*175= Rs.7000
For Technical and HR team but not content team
(200+240)/2= Rs.220
No. of employees=14% of 400=56
56*220= Rs.12320
For all three teams
(200+240+150)/3=197 (approximately)
197*(5% of 400)
197*20=Rs.3940
Total salary per hour =
8400+16000+34560+780+7000+12320+3940
= > Rs.83000

227) Answer: b)
For content team only
Salary per week =5250
Salary per month = 5250*4 => Rs.21000
For HR and content team not technical
Salary per hour of only HR team=9600/40 => Rs. 240
Salary per hour for only content team = 5250/35 => Rs.150
Salary per hour for HR and content team not technical team= (240+150) /2
=> 195
No of working hours per month= 8*5*4 =160
Salary per month=195*160 = > RS. 31200
For technical and HR team but not content team
Salary per hour of only technical team=9000/45 =>Rs.200
Salary per hour for technical and HR team but not content team = (240+200)/2 =>220

No of working hours per month=7*5*4 =140
Salary per month=200*140=> Rs.28000
Required ratio =21000:31200:28000
=>105: 156: 140

228) Answer: a)
Quantity I:
Salary per week= (9000+9600)/2
=Rs.9300
Salary per month 9300*4=Rs.37200
No. of employee working = 14% of 400 => 56
Salary per month = 37200*56=>Rs.2083200
For HR and content team but not technical team
 Salary per week = (5250+9600)/2 = Rs.7425
Salary per month 7425*4=Rs.29700
No. of employee working=1% of 400 => 4
Salary per month =29700*4= >Rs.118800
Required percentage = ((2083200-118800)/2083200))*100=> 94%
Quantity II:
For HR and content team but not technical team
 Salary per week = (5250+9600)/2 = Rs.7425
Salary per month 7425*4=Rs.29700
No. of employee working=1%400 => 4
Salary per month for 4 employees =29700*4= >Rs.118800
For employee working in all three department
Average salary= (5250+9000+9600)/3=7950
Salary per month=7950*4=31800
No of employees=5%*400=20
Salary per month for 20 employees=31800*20=>636000
Required percentage= ((636000-118800)/636000) => 81%
Hence, Quantity I > Quantity II

229) Answer: a)

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Quantity I:
Employees working in three department = 5% of 400 =20
Salary per week = (5250 +9000 +9600)/3 => 7950
Salary per day = 7950/5 => 1590
No of working days = 21
21*1590=Rs.33390
Salary given to employees = 33390*20 = Rs.667800
Quantity II:
Employee in only technical team=20% of 400 => 80
Female employees in only technical team=80-35 =45
Salary per week = 45*9000 =Rs.405000
Employee in only content team =14% of 400 = > 56
Male employee in only content team = 56 – 20 = > 36
Salary per week = 36*5250 = > Rs.189000
Total salary = 405000+ 189000 = Rs.594000
Hence, Quantity I > Quantity II

230) Answer: a)
For statement A:
No of employees in only HR team = 36% of 400 = > 144
Statement A is correct
For statement B:
No of employee in only technical team = 20 % 400 => 80
Then number of female = 3/8 * 80 = > 30
Statement B is incorrect
For statement C:
No of employee working in all the three team=5% of 400 => 20
Statement C is incorrect
For statement D:
No. of employees = 1% of 400 => 4
Statement D is correct

Set 47:
Direction (231-235):
231) Answer: c)
For Great Grand Father
Principal Amount=Rs.50,000
Simple interest = p*r*t/100
=50000*10*8/100
=Rs.40,000
Amount= Principal + Simple Interest
=50000 + 40000 => Rs 90,000
For Grand Father
Principal amount = Rs.90000
Scheme B compound interest =15%
Time=2 years
Amount on compound interest = $p*(1+r/100)^t$
=$90000*(1+15/100)^2$
=>119025
For Sohan Father
Amount received by Sohan Father = 119025 – 25 = 119000
Amount invested in scheme A at compound interest for 3 years=119000*3/7
=>Rs.51000
Amount on compound interest =$p*(1+r/100)^t$
=$51000*(1+10/100)^3$
=>Rs.67881
Amount invested in scheme D at simple interest for 3 years=119000*4/7
=>Rs.68000
Amount on simple interest= P+ (P*r*t/100)
= 68000 + (68000*8*3/100) = 68000 + 16320
=>Rs.84320
Amount Sohan Received = 67881+ 84320=>Rs.152201

232) Answer: d)
For Scheme A:
Amount invested=25% of 80000= Rs.20000

Interest earned through simple interest = p*r*t/100
=20000*10*4/100 = Rs.8000
Interest earned through compound interest = =
p*(1+r/100)^t - P
= 20000*(1+10/100)^2 – 20000
Interest earned=24200 - 20000 = 4200
Difference of interest= 8000 - 4200 = Rs.3800
For Scheme B:
Amount invested = 30% of 80000 = Rs.24000
Interest earned through simple interest = p*r*t/100
= 24000*4*20/100 = Rs.19200
Interest earned through Compound Interest=
p*(1+r/100)^t – p
= 24000*(1+15/100)^2 - 24000
= Rs.31740 - 24000 = Rs.7740
Difference of interest = 19200 - 7740 = Rs.11460
For Scheme C:
Amount invested = 15% of 80000 =Rs.12000
Interest earned through simple interest=p*r*t/100
=12000*12*4/100 = Rs. 5760
Interest earned through Compound Interest=
p*(1+r/100)^t - p
=12000*(1 + 18/100)^2 - 12000
=12000*59/50*59/50 - 12000
=16709 - 12000 = Rs.4709
Difference of interest= 5760 – 4709 = Rs.1051
For Scheme D:
Amount invested = 17% of 80000
Amount invested = Rs.13600
Interest earned through simple interest=p*r*t/100
=13600*8*4/100 =Rs.4352
Interest earned through Compound Interest=
p*(1+r/100)^t - p
= 13600*(1+5/100)^2 - 13600
= 13600*105/100*105/100 - 13600
= 14994 - 13600 = Rs.1394
Difference of interest= 4352 - 1394= Rs.2958

For Scheme E:
Amount invested = 13% of 80000 = 10400
Interest earned through simple interest=p*r*t/100
=10400*11*4/100
=Rs.4576
Interest earned through Compound Interest=
p*(1+r/100)^t - p
=10400* (1+ 9/100)^2 – 10400
= 10400*109/100*109/100 – 10400
=12356 - 10400 = 1956
Difference of interest = 4576 - 1956 = > Rs.2620
Total difference = 2620 + 2958 + 1051 + 3800 + 11460
= Rs.21889

233) Answer: a)
Let the amount invested by Lalita is 5X
Let the amount invested by Babita is 3X
Amount received by Lalita = p*(1+r/100)^t
=5X*(1 +15/100)^3
=5X*115/100*115/100*115/100 = 7.60 X
Amount received by Babita =p*(1+r/100)^t
=3X*(1 +5/100)^4
=3X*105/100*105/100*105/100*105/100
=3.64X
Required percentage= 7.60X/3.64X * 100
= 208.79% = 209%

234) Answer: b)
Quantity I:
For Scheme B
Amount invested=X*30% = Rs.0.3X
Interest earned through simple interest=p*r*t/100
0.3X*20*3/100 = 0.18X
For Scheme C
Amount invested=   x*15% = 0.15X
Interest earned through compound interest=
p*(1+r/100)^t - p

$= 0.15X*(1+18/100)^2 - 0.15X$

$= 0.208X - 0.15X = 0.058X$

Difference $= 0.18X - 0.058X = 0.122X$

Quantity II:

For Scheme A

Amount invested$=X*25\% = $Rs.0.25X

Interest earned through simple interest$=p*r*t/100$

$=0.25X*10*2/100 = 0.05X$

For Scheme C

Amount invested$=X*15\% = $Rs.0.15X

Interest earned through simple interest$=p*r*t/100$

$=0.15X*12*2/100 = 0.036X$

Total interest $= 0.05X+0.036X$

$=>0.086X$

Quantity I < Quantity II

235) Answer: a)

Quantity I: Amount invested=10000

For scheme A

Amount invested$=10000*25\% = $Rs.2500

Interest earned through simple interest$=p*r*t/100$

$=2500*10*4/100 = 1000$

For Scheme B

Amount invested$=10000*30\% = $Rs.3000

Interest earned through simple interest$=p*r*t/100$

$=3000*20*4/100 = 2400$

For Scheme C

Amount invested$=10000*15\% = $Rs.1500

Interest earned through simple interest$=p*r*t/100$

$=1500*12*4/100 = 720$

For Scheme D

Amount invested$=10000*17\% = $Rs.1700

Interest earned through simple interest$=p*r*t/100$

$=1700*8*4/100 = 544$

For Scheme E

Amount invested$=10000*13\% = $Rs.1300

Interest earned through simple interest$=p*r*t/100$

$=1300*11*4/100 = 572$

Highest interest is earned by scheme B

(Or)

Amount invested in scheme B is highest at the same time Rate of interest in scheme B is highest compare than other schemes.

Amount invested$=10000*30\% = $Rs.3000

Interest earned through simple interest$=p*r*t/100$

$=3000*20*4/100 = 2400$

Quantity I =2400

Quantity II:

Amount invested$=10000*15\% = $Rs.1500

Interest earned through compound interest$=$

$p*(1+r/100)^t$

$=1500*(1+18/100)^2$

$=1500*118/100*118/100$

$=$Rs.2088

Quantity II$= 2088$

Hence Quantity I > Quantity II

Set 48:

Direction (236-240):

From the paragraph,

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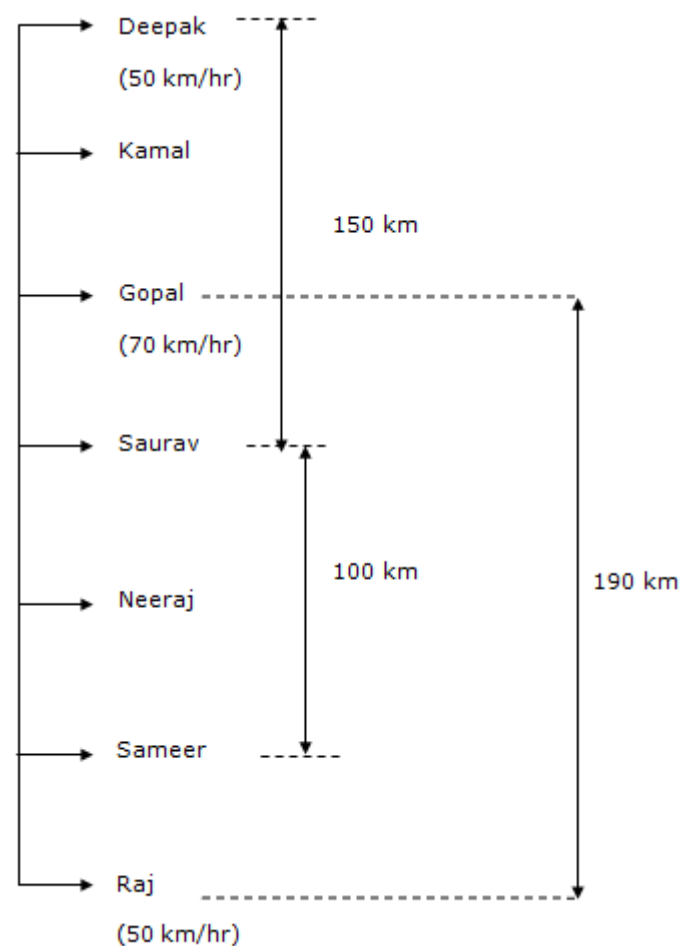### Complete Guide for Bank Exam & SSC Exams

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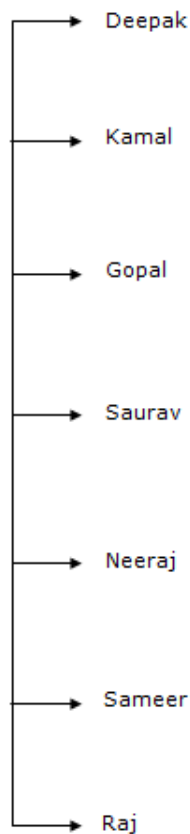
Saurav lives 150 km away from Deepak. Deepak takes 5 hours to reach to Sameer who lives 250 km away from him. When Gopal and Raj move towards each other at 70 km/hr and 50 km/hr respectively, they meet after 1 hr 35 min
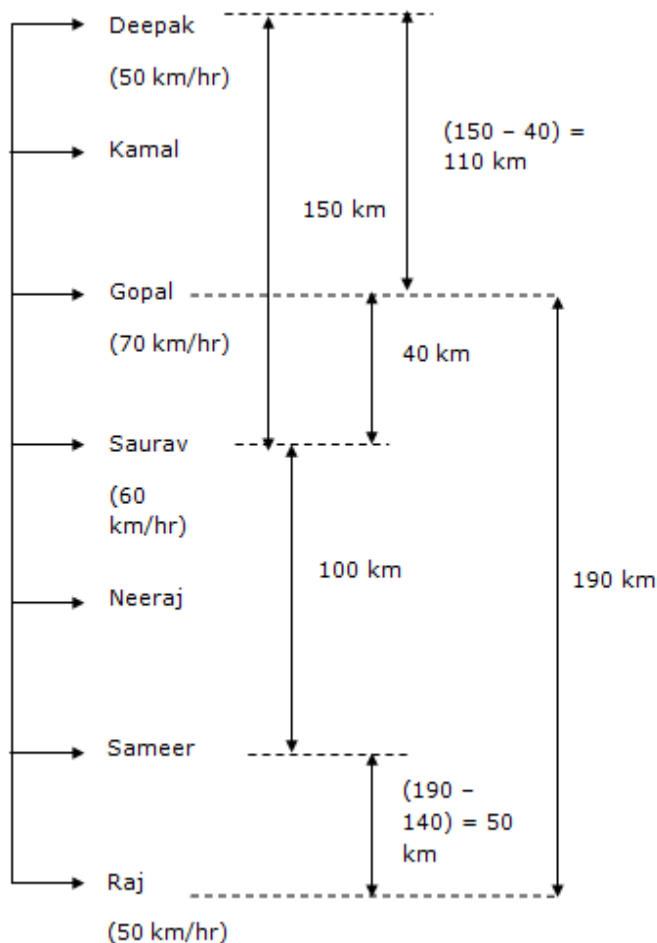
Deepak speed = 250/5 = 50 km/hr

Gopal takes only 240/7 min to reach to Saurav.

Saurav Speed = 100/(1 (40/60)) = 60 km/hr

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Kamal being 240 km away from Raj crosses Neeraj after 5 hr 40 min and meets Raj after 8 hours from start.
Kamal speed = 240/8 = 30 km/hr
Distance covered by Kamal to Neeraj = 30 * (5 (2/3)) = 170 km
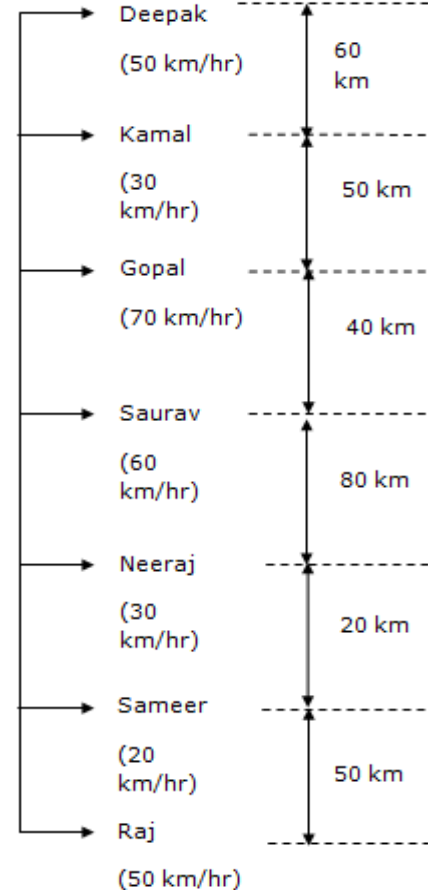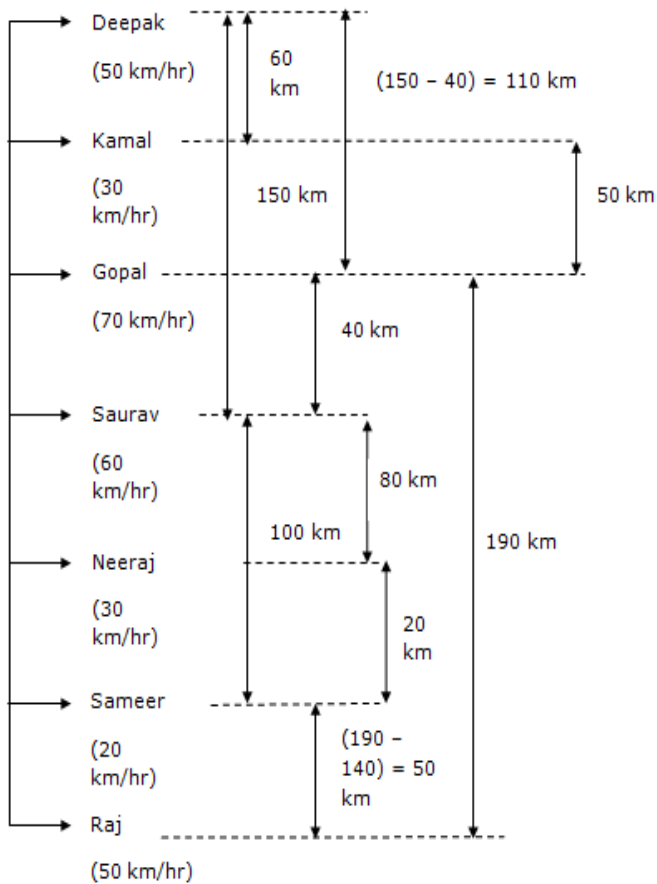Distance between Saurav to Neeraj = 170 km – 90 km = 80 km
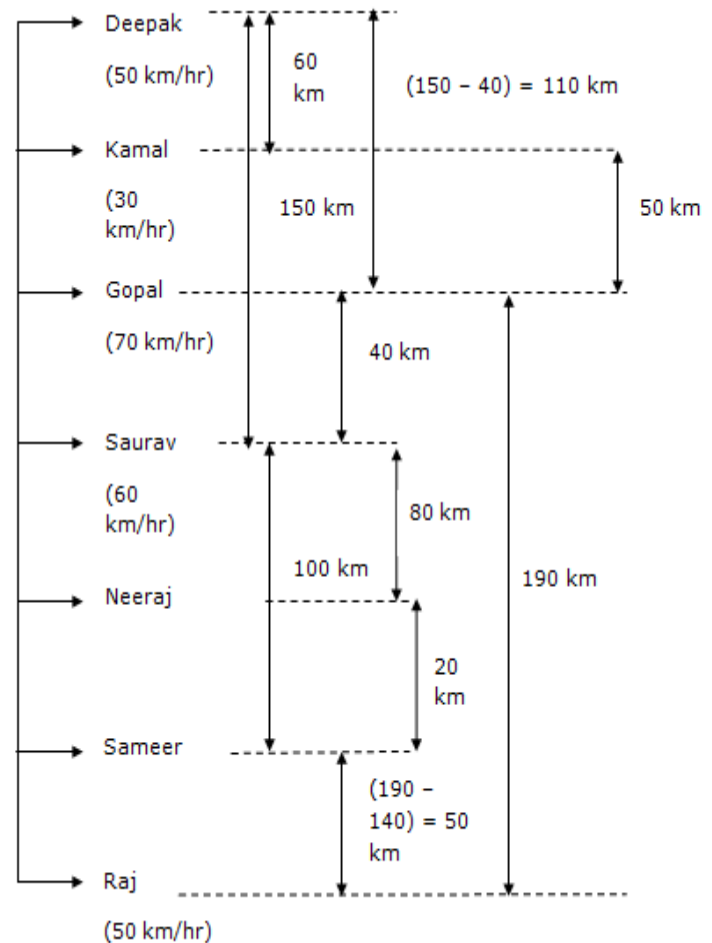
Neeraj and Sameer meet after 24 minutes if they start moving simultaneously towards each other with speed in 3: 2 ratio.
According to the statement,
20/(3x + 2x) = 24/60
= > x = 10 km/hr
Neeraj's speed = 30 km/hr
Sameer's speed = 20 km/hr

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By solving following information, we get

Friends	Speed (km/hr)	Distance (km) with reference to Deepak
Deepak	50	0
Kamal	30	60
Gopal	70	110
Saurav	60	150
Neeraj	30	230
Sameer	20	250
Raj	50	300

236) Answer: b)

Time taken by Neeraj = 230/30 = 7 hr 40 min

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Total time taken = 7 hr 50 min
He must left his house at 1:10 PM

237) Answer: a)
Distance of office from Kamal's house = 170 + 120 = 290 km
Distance travelled by them in 35 minutes = 30 * 35/60 = 17.5 km
Distance of his girlfriend's house from his house = 290 – 17.5 = 272.5 km

238) Answer: a)
Required ration = 300/(230 – 110) = 5:2

239) Answer: e)
Group I (Deepak, Kamal and Gopal)
Total Time taken = 60/50 + 50/30 + 40/70 = 361/105 hr
Group II (Neeraj, Sameer and Raj)
Total time taken = 50/50 + 20/20 + 80/30 = 14/3 hr
Required time = 14/3 – 361/105 = (490 – 361)/105 = 129/105 = 1.23 hrs

240) Answer: d)
Required percent = (70 – 50)/50 * 100 = 40%

Set 49:
Direction (241-245):
241) Answer: c)
Cost Price of item D = MP×100/((100 + %Mark-up))
= 800×100/((100 + 33 1/3))
= 800 * (100/(400/3))
= 800 * ¾
= Rs.600
Original Selling Price = MP×((100 - %Discount))/100
= 800×((100 - 18))/100
= Rs. 800 *82/100
= Rs. 656

Original Profit = SP – CP = Rs.656-600 = Rs.56
New Selling Price = MP×((100 - %Discount))/100×((100 - %Discount))/100
= 800×((100 - 12))/100×((100 - 13))/100
= Rs. 800 * 88/100 * 87/100 = Rs.612.48
New Profit = SP – CP = 600 – 612.48 = Rs.12.48
% Decrease in Profit = ((56-12.48))/56×100 = 78% approximately

242) Answer: d)
Cost price of item A = 2 * Marked price of item C – 150 = Rs.400
Marked price of item A = 5/8× Marked price of item D = Rs.800 * 5/8
= Rs.500
Selling Price of item A = MP×((100 - %Discount))/100
= 500×((100 – 9))/100
= Rs.455
Profit/kg = SP – CP = 455 – 400 = Rs.55
Quantity Sold = (Total Profit)/(Profit/kg) = 1320/55 = 24 kg

243) Answer: e)
Cost Price of pure item C = MP×100/((100 + %Mark-up))
= 275×100/((100 + 10))
= 275 *100/110 = Rs.250
Cost Price/kg of the mixture = (Total Cost Price)/(Total Quantity) = (5×120 + 15×250)/(5 + 15) = Rs.217.5
New Discount = 14% + 10% * 14 = 14+1.4 = 15.4%
New Selling price = = MP×((100 - %Discount))/100
= 275×((100 – 15.4))/100
= Rs.232.65
New Profit % = (New Selling Price - New Cost Price)/(New Cost Price)×100
= (232.65- 217.5)/217.5×100
= 6.9 = 7% (Approximately)

244) Answer: a)

Selling Price of item B

= CP×((100 + %Mark-up))/100×((100 - %Discount))/100

= 500×((100 + 20))/100×((100 - 8))/100

= Rs.552

1kg of item B is spoiled out of total 10 kg, so only 9 kg is available for sale.

Total Profit = Total Selling Price – Total Cost Price

= 9 × 552– 10 × 500

= 4968 – 5000

= Rs. 32 (loss)

245) Answer: c)

Selling Price of item E = CP * (100+% Marks-up)/100×((100 - %Discount))/100

Selling price of item E = 750* (100+20)/100 * (100 – 17)/100 = Rs. 747

Profit/loss = SP – CP = 747 – 750 = Rs.3

Loss percentage = 3/750 * 100 = 0.4%

Set 50:

Direction(246-250):

Ratio of number of Blue colour balls in bag A, B and C = 72: 120: 168 = 3: 5: 7

Let number of blue balls in bag A, B and C is 3x, 5x and 7x respectively.

Number of yellow balls in bag A = 3x * (5/3) = 5x

Total balls in bag A = (40 + 3x + 5x) = (40 + 8x)

Probability when two balls are selected from bag A and out of which one Red and other is Blue = $[(^{40}C_1 * {}^{3x}C_1)/^{(40 + 8x)}C_2] = 20/119$

$120x/(20 + 4x)(39 + 8x) = 20/119$

$3x/(5 + x)(39 + 8x) = 2/119$

$357x = 16x^2 + 158x + 390$

$16x^2 – 199x + 390 = 0$

$16x^2 – 160x – 39x + 390 = 0$

$16x (x - 10) – 39 (x - 10) = 0$

$(16x - 39) (x - 10) = 0$

= > x = 10, 39/16 (Eliminate the fraction value)

x = 10

Number of Blue balls in bag A = 3x = 30

Number of Yellow balls in bag A = 5x = 50

Total balls in bag A = 40 + 30 + 50 = 120

Number of Blue balls in bag B = 5x = 50

Number of Blue balls in bag C = 7x = 70

Let the number of yellow balls in bag B = b

Total balls in bag B = (60 + 50 + b) = (110 + b)

Probability when two Blue balls are selected from bag B = $^{50}C_2/^{(110 + b)}C_2$

= (49/447)

$(50 * 49)/[(110 + b)(110 + b – 1)] = 49/447$

$50/[(110 + b) (109 + b)] = 1/447$

$22350 = 11990 + 110b + 109b + b^2$

$22350 = 11990 + 219b + b^2$

$b^2 + 219b – 10360 = 0$

$b^2 + 259b – 40b – 10360 = 0$

$(b + 259) (b - 40) = 0$

= > b = 40, -259 (Eliminate –ve value)

b = 40

Number of yellow balls in bag B = b = 40

Total balls in bag B = 60 + 50 + 40 = 150

Let the number of yellow balls in bag C = c

Probability of selecting a Blue ball from bag B = 50/150 = 1/3

Total balls in bag C = (20 + 70 + c) = (90 + c)

Probability of selecting a Blue ball from bag C = 70/(90 + c)

According to the question:

$[70/(90 + c)] – (1/3) = 1/4$

$70/(90 + c) = 7/12$

$10/(90 + c) = 1/12$

$120 = 90 + c$

c = 30
Number of yellow balls in bag C = c = 30
Total balls in bag C = 20 + 70 + 30 = 120

Colour/ Bags	Red	Blue	Yellow	Total
A	40	30	50	120
B	60	50	40	150
C	20	70	30	120

246) Answer: b)
Probability of selecting two red balls from bag A = $^{40}C_2/^{120}C_2$
= (20 * 39)/(60/119) = (13/119)
Probability of selecting one yellow ball from bag B = 40/150 = (4/15)
Probability of selecting one blue ball from bag C = 70/120 = (7/12)
Required probability = (13/119) * (4/15) * (7/12) = (13/765)

247) Answer: d)
Probability of selecting two Blue colour balls from bag A = $^{30}C_2/^{120}C_2$ = (29/476)
Probability of selecting either a red colour ball or a blue colour ball from bag B
= (60/150) + (50/150) = (11/15)
Required difference = (11/15) – (29/476) = (5236 – 435)/7140
= (4801/7140)

248) Answer: a)
Probability of selecting one blue colour ball from bag A
= (30/120) = (1/4)
Probability of selecting one blue colour ball from bag B
= (50/150) = (1/3)

Difference = (1/3) – (1/4) = (1/12)
Probability of selecting one red colour ball from bag B
= (60/150) = (2/5)
Probability of selecting one red colour ball from bag C
= (20/120) = (1/6)
Difference = (2/5) – (1/6) = (7/30)
Required per cent = [{(7/30) – (1/12)}/(7/30)] * 100 = (450/7)%

249) Answer: e)
Probability that both the selected balls from bag B and C are of red colour
= (60/150) * (20/120) = (1/15)
Probability that both the selected balls from bag B and C are of blue colour
= (50/150) * (70/120) = (7/36)
Probability that both the selected balls from bag B and C are of yellow colour
= (40/150) * (30/120) = (1/15)
Total probability = (1/15) + (7/36) + (1/15) = (59/180)

250) Answer: b)
After transfer, number of red colour balls in bag B = 60 – [83(1/3) % of 60]
= 10
After transfer, number of yellow colour balls in bag B = (40 + p)
Total balls in bag B after transfer = 10 + 50 + (40 + p) = (100 + p)
After transfer, number of red colour balls in bag C = 20 + [83(1/3)% of 60]
= 70
After transfer, number of yellow colour balls in bag C = (30 – p)
Total balls in bag C after transfer = 70 + 70 + (30 – p) = (170 – p)

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Probability of selecting a red colour ball from bag B = [10/(100 + p)]

Probability of selecting a blue colour ball from bag C = [70/(170 – p)]

According to the question:

[10/(100 + p)] + [70/(170 – p)] = (11/20)

20[10(170 – p) + 70(100 + p)] = 11(100 + p)(170 – p)

20[1700 – 10p + 7000 + 70p) = 11(17000 + 70p – p²)

174000 + 1200p = 187000 + 770p – 11p²

11p² + 430p – 13000 = 0

11p² - 220p + 650p – 13000 = 0

11p (p - 20) + 650 (p - 20) = 0

= > p = 20, - 650/11 (Eliminate –ve value)

p = 20

Set 51:

Direction (251-255):

251) Answer: c)

Total amount of mixture in container D = 12/100 x 3000 = 360 litres

Initial amount of milk in container D = 5/9 x 360 = 200 litres

Initial amount of water in container D = 4/9 x 360 = 160 litres

(200 – 5x/9 + 5)/(160 – 4x/9 + 22) = 11/10

=> (1800 – 5x + 45)/(1440 – 4x + 198) = 11/10

=> (1845 – 5x)/(1638 – 4x) = 11/10

=> 10 x (1845 – 5x) = 11 x (1638 – 4x)

=> 18450 – 50x = 18018 – 44x

=> 50x – 44x = 18450 – 18018

=> 6x = 432

=> x = 72 litres

Amount of milk in the remaining mixture = 200 – 5/9 x 72 + 5 = 165 litres

Amount of water in the remaining mixture = 160 – 4/9 x 72 + 22 = 150 litres

Milk: Water = 165: 150 = 11: 10

Now,

x + 12 = 72 + 12 = 84 litres

Amount of milk in the final mixture = 165 – 11/21 x 84 + 4 = 125 litres

Amount of water in the final mixture = 150 – 10/21 x 84 + 10 = 120 litres.

Required difference = 125 – 120 = 5 litres.

252) Answer: b)

Total amount of mixture in container C = 20/100 x 3000 = 600 litres

Initial amount of milk in container C = 5/8 x 600 = 375 litres

Initial amount of water in container C = 3/8 x 600 = 225 litres

Remaining amount of milk in container C = 375 – 5/8 x 240 = 225 litres

Remaining amount of water in container C = 225 – 3/8 x 240 = 135 litres

Total amount of mixture in container E = 15/100 x 3000 = 450 litres

Initial amount of milk in container E = 5/9 x 450 = 250 litres

Initial amount of water in container E = 4/9 x 450 = 200 litres

Remaining amount of milk in container E = 250 – 5/9 x 180 = 150 litres

Remaining amount of water in container E = 200 – 4/9 x 180 = 120 litres

Now,

Final amount of milk in the mixture = 225 + 150 + 5 = 380 litres

Final amount of water in the mixture = 135 + 120 + 5 = 260 litres

Required ratio = 380: 260 = 19:13

253) Answer: e)

Total amount of mixture in container A = 5/100 x 3000 = 150

Amount of milk in container A = 8/15 x 150 = 80 litres

Amount of water in container A = 7/15 x 150 = 70 litres

Total amount of mixture in container B = 8/100 x 3000 = 240 litres

Amount of milk in container B = 7/12 x 240 = 140 litres

Amount of water in container B = 5/12 x 240 = 100 litres

Amount of milk in container K = (80 + 140)/2

= 220/2

= 110 litres

Amount of water in container K = 80/100 x (70 + 100)/2

= 80/100 x 170/2

= 68 litres

Required percentage = (110 – 68)/68 x 100

= 42/68 x 100

= 61.76%

= 62% approx.

254) Answer: e)

Quantity I:

Total quantity of mixture in container F = 16/100 x 3000 = 480 litres

Initial amount of milk in container F = 7/12 x 480 = 280 litres

Initial amount of water in container F = 5/12 x 480 = 200 litres

Amount of milk in the final mixture of container F = 280 – 7/12 x 60 + 5

= 250 litres

Amount of water in the final mixture of container F = 200 – 5/12 x 60 + 15

= 190 litres

Required difference = 250 – 190 = 60 litres

Quantity II:

Total quantity of mixture in container G = 14/100 x 3000 = 420 litres

Initial amount of milk in container G = 4/7 x 420 = 240 litres

Initial amount of water in container G = 3/7 x 420 = 180 litres

Amount of milk in the final mixture of container G = 240 – 4/7 x 56 + 22

= 230 litres

Amount of water in the final mixture of container G = 180 – 3/7 x 56 + 14

= 170 litres

Required difference = 230 – 170 = 60 litres

Hence, Quantity I = Quantity II

255) Answer: d)

From I:

Total quantity of mixture in container M = 10/100 x 3000 x 120/100 = 360 litres

=> Milk + Water = 360 ----------- (i)

From II:

Total quantity of mixture in container D = 12/100 x 3000 = 360 litres

Amount of milk in container D = 5/9 x 360 = 200 litres

Amount of water in container D = 4/9 x 360 = 160 litres

Difference = 200 – 160 = 40

=> Milk – Water = 40 + 10

=> Milk – Water = 50 -------------- (ii)

From I and II:

Adding (i) and (ii)

Milk + Water + Milk – Water = 360 + 50

=> 2 x Milk = 410

=> Milk = 410/2

=> Milk = 205 litres

Amount of milk in container C = 5/8 x 20/100 x 3000 = 375 litres

Required percentage = 205/375 x 100 = 54.67%

Hence, both statements I and II together are needed to answer the question.

Set 52:

256) Answer: c)

Bag A:

Red = 5

Yellow = 4

White = 2

Let, Green = m

And Orange = n

Total = (5 + 4 + 2 + m + n) = 11 + m + n

5/(11 + m + n) = ¼

=> 20 = 11 + m + n

=> m + n = 20 – 11

=> m + n = 9 ------------------ (i)

And

n/(11 + m + n) = 3/10

n/(11 + 9) = 3/10

n/20 = 3/10

= > n = 6

From (i)

m + 6 = 9

=> m = 9 – 6

=> m = 3

Hence, Green = 3

Orange = 6

Total = 11 + 3 + 6 = 20

Probability of drawing two Red balls and two Green balls from bag A

$= (^5c_2 \times {}^3c_2)/{}^{20}c_4$

= (10 x 3)/4845

= 2/323

Probability of drawing two White balls and two Orange balls from bag A

$= (^2c_2 \times {}^6c_2)/{}^{20}c_4$

= (1 x 15)/4845

= 1/323

Required ratio = 2/323: 1/323 = 2:1

257) Answer: d)

Bag B:

Green = 6

White = 4

Orange = 5

Let, Red = m

And Yellow = n

Total = 6 + 4 + 5 + m + n = 15 + m + n

5/(15 + m + n) = 1/5

=> 25 = 15 + m + n

=> m + n = 25 – 15

=> m + n = 10 ----------- (i)

And

n/(15 + m + n) = 7/25

n/(15 + 10) = 7/25

n/25 = 7/25

= > n = 7

From (i)

m + 7 = 10

=> m = 10 – 7

=> m = 3

Hence,

Red = 3

Yellow = 7

Total = 15 + 3 + 7 = 25

Probability of drawing one Green ball and one Yellow ball from bag B

$= (^6c_1 \times {}^7c_1)/{}^{25}c_2$

= (6 x 7)/300

= 7/50

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Probability of drawing five balls from bag B such that each ball is of different colour

$= ({}^3c_1 \times {}^6c_1 \times {}^7c_1 \times {}^4c_1 \times {}^5c_1)/{}^{25}c_5$

$= (3 \times 6 \times 7 \times 4 \times 5)/53130$

$= 12/253$

Required percentage $= (7/50)/(12/253) \times 100$

$= 295.16\%$

$= 295\%$ approx.

258) Answer: b)

Bag C:

Red $= 8$

Green $= 4$

Yellow $= 2$

Let, White $= m$

And Orange $= n$

Total $= 8 + 4 + 2 + m + n = 14 + m + n$

$4/(14 + m + n) = 1/6$

$\Rightarrow 24 = 14 + m + n$

$\Rightarrow m + n = 24 - 14$

$\Rightarrow m + n = 10$ ------------ (i)

And

$m/(14 + m + n) = ¼$

$m/(14 + 10) = ¼$

$m/24 = ¼$

$\Rightarrow m = 6$

From (i)

$6 + n = 10$

$\Rightarrow n = 10 - 6$

$\Rightarrow n = 4$

Hence,

White $= 6$

Orange $= 4$

Total $= 14 + 6 + 4 = 24$

Probability of drawing five balls from bag C such that all the balls are of same colour

$= ({}^8c_5 + {}^6c_5)/{}^{24}c_5$

$= (56 + 6)/42504$

$= 62/42504$

Probability of drawing five balls from bag C such that each ball is of different colour

$= ({}^8c_1 \times {}^4c_1 \times {}^2c_1 \times {}^6c_1 \times {}^4c_1)/{}^{24}c_5$

$= (8 \times 4 \times 2 \times 6 \times 4)/42504$

$= 1536/42504$

Required average $= (62/42504 + 1536/42504)/2$

$= 1598/42504 \times ½$

$= 799/42504$

259) Answer: a)

Bag D:

Red $= 4$

Yellow $= 6$

Let, Green $= m$

And White $= n$

$\Rightarrow$ Orange $= n$

Total $= 4 + 6 + m + n + n = 10 + m + 2n$

$n/(10 + m + 2n) = 1/6$

$\Rightarrow 6n = 10 + m + 2n$

$\Rightarrow 6n - 2n - m = 10$

$\Rightarrow 4n - m = 10$ ------------ (i)

And

$4/(10 + m + 2n) = 2/9$

$\Rightarrow 36 = 20 + 2m + 4n$

$\Rightarrow 2m + 4n = 36 - 20$

$\Rightarrow 2m + 4n = 16$

$\Rightarrow m + 2n = 8$ ------------- (ii)

Adding (i) and (ii)

$4n - m + m + 2n = 10 + 8$

$\Rightarrow 6n = 18$

$\Rightarrow n = 18/6$

$\Rightarrow n = 3$

From (i)

$4 \times 3 - m = 10$

$\Rightarrow m = 12 - 10$

=> m = 2

Hence,

Green = 2

White = 3

Orange = 3

Total = 4 + 6 + 2 + 2 x 3 = 18

Quantity I:

Required probability = $(^6c_1 \times {}^3c_2 \times {}^3c_1)/{}^{18}c_4$

= (6 x 3 x 3)/3060

= 3/170

Quantity II: Find the probability of drawing 3 Red balls and 1 Green ball from bag D.

Required probability = $(^4c_3 \times {}^2c_1)/{}^{18}c_4$

= (4 x 2)/3060

= 2/765

Hence, Quantity I > Quantity II

260) Answer: d)

Bag E:

Green = 5

Orange = 7

Let, Red = m

Yellow = n

White = p

Total = 5 + 7 + m + n + p = 12 + m + n + p

n/(12 + m + n + p) = 1/12

=> 12n = 12 + m + n + p

=> 12n – n – m – p = 12

=> 11n – m – p = 12 ---------- (i)

From I:

m/(12 + m + n + p) = ¼

=> 4m = 12 + m + n + p

=> 4m – m – n – p = 12

=> 3m – n – p = 12 ----------- (ii)

From II:

p = 2n ------------ (iii)

From I and II:

From (i) and (iii)

11n – m – 2n = 12

=> 9n – m = 12 -------- (iv)

From (ii) and (iii)

3m – n – 2n = 12

=> 3m – 3n = 12

=> m – n = 4 --------- (v)

Adding (iv) and (v)

9n – m + m – n = 12 + 4

=> 8n = 16

=> n = 2

From (v)

m – 2 = 4

=> m = 6

p = 2 x 2 = 4

Hence,

Red = 6

Yellow = 2

White = 4

Total = 12 + 6 + 2 + 4 = 24

Probability of drawing 2 Green balls from bag E = $^5c_2/{}^{24}c_2$

= 5/138

Probability of drawing 2 White balls from bag E = $^4c_2/{}^{24}c_2$

= 3/138

= 1/46

Required difference = 5/138 – 1/46

= (5 – 3)/138

= 2/138

= 1/69

Hence, both statements I and II together are needed to answer the question.

Set 53:

Direction (261-265):

261) Answer: b)

Upstream speed of boat D on Sunday = 20/2 = 10 Km/h

Upstream speed of boat C on Sunday = 10 x 120/100 = 12 Km/h

Upstream speed of boat A on Sunday = 2/3 x 12 = 8 Km/h

Upstream speed of boat B on Sunday = 8 + 5 = 13 Km/h

Upstream speed of boat E on Sunday = 7/13 x 26 = 14 Km/h

Upstream speed of boat F on Sunday x 150/100 = 12

=>Upstream speed of boat F on Sunday = 12 x 100/150 = 8 Km/h

Time taken by boat A to complete its journey on Sunday = (80/16 + 80/8)

= (5 + 10)

= 15 hours

Let, speed of boat A in still water = x Km/h

Speed of the stream on Sunday = y Km/h

x + y = 16 -------- (i)

x − y = 8 ---------- (ii)

Adding (i) and (ii)

x + y + x − y = 16 + 8

=> 2x = 24

=> x = 24/2

=> x = 12 Km/h

From (i)

12 + y = 16

=> y = 16 − 12

=> y = 4 Km/h

Speed of the stream on Monday = 4 + 2 = 6 Km/h

Downstream speed on Monday = 12 + 6 = 18 Km/h

Upstream speed on Monday = 12 − 6 = 6 Km/h

Time taken by boat A to complete its journey on Monday = (80/18 + 80/6)

= (80 + 240)/18

= 320/18 hours

= 160/9 hours

Required ratio = 15: 160/9

= 27:32

262) Answer: c)

Upstream speed of boat D on Sunday = 20/2 = 10 Km/h

Upstream speed of boat C on Sunday = 10 x 120/100 = 12 Km/h

Upstream speed of boat A on Sunday = 2/3 x 12 = 8 Km/h

Upstream speed of boat B on Sunday = 8 + 5 = 13 Km/h

Upstream speed of boat E on Sunday = 7/13 x 26 = 14 Km/h

Upstream speed of boat F on Sunday x 150/100 = 12

=> Upstream speed of boat F on Sunday = 12 x 100/150 = 8 Km/h

Let, speed of boat B in still water = x Km/h

And speed of the stream on Sunday = y Km/h

x + y = 19 --------- (i)

x − y = 13 ----------- (ii)

Adding (i) and (ii)

x + y + x − y = 19 + 13

=> 2x = 32

=> x = 32/2

=> x = 16 Km/h

From (i)

16 + y = 19

=> y = 19 − 16

=> y = 3 Km/h

Speed of the stream on Monday = (3 + 1) = 4 Km/h

Downstream speed on Monday = 16 + 4 = 20 Km/h

Upstream speed on Monday = 16 − 4 = 12 Km/h

Required time = (133.5/20 + 133.5/16) x 2

= (6.675 + 8.34375) x 2

= 15.01875 x 2

= 30.0375

= 30 hours

263) Answer: e)
Upstream speed of boat D on Sunday = 20/2 = 10 Km/h
Upstream speed of boat C on Sunday = 10 x 120/100 = 12 Km/h
Upstream speed of boat A on Sunday = 2/3 x 12 = 8 Km/h
Upstream speed of boat B on Sunday = 8 + 5 = 13 Km/h
Upstream speed of boat E on Sunday = 7/13 x 26 = 14 Km/h
Upstream speed of boat F on Sunday x 150/100 = 12
=> Upstream speed of boat F on Sunday = 12 x 100/150 = 8 Km/h
Time taken by boat C to complete its journey on
Sunday = 144/12 + 72/16
= 12 + 4.5
= 16.5 hours
Let, speed of boat C in still water = x Km/h
And speed of the stream on Sunday = y Km/h
x + y = 16 --------- (i)
x − y = 12 ---------- (ii)
Adding (i) and (ii)
x + y + x − y = 16 + 12
=> 2x = 28
=> x = 28/2
=> x = 14 Km/h
Time taken by boat C to complete its journey on
Tuesday = 144/14 x 2
= 144/7 Km/h
Required percentage = 16.5/(144/7) x 100
= 80.20%
= 80% approx.

264) Answer: a)
Upstream speed of boat D on Sunday = 20/2 = 10 Km/h

Upstream speed of boat C on Sunday = 10 x 120/100 = 12 Km/h
Upstream speed of boat A on Sunday = 2/3 x 12 = 8 Km/h
Upstream speed of boat B on Sunday = 8 + 5 = 13 Km/h
Upstream speed of boat E on Sunday = 7/13 x 26 = 14 Km/h
Upstream speed of boat F on Sunday x 150/100 = 12
=> Upstream speed of boat F on Sunday = 12 x 100/150 = 8 Km/h
Quantity I:
Let, speed of boat D in still water = x Km/h
And speed of the stream = y Km/h
x + y = 20 --------- (i)
x − y = 10 --------- (ii)
Adding (i) and (ii)
x + y + x − y = 20 + 10
=> 2x = 30
=> x = 30/2
=> x = 15 Km/h
From (i)
15 + y = 20
=> y = 20 − 15
=> y = 5 Km/h
Speed of the stream on Wednesday = 5 − 2 = 3 Km/h
Downstream speed on Wednesday = 15 + 3 = 18 Km/h
Upstream speed on Tuesday = 15 − 3 = 12 Km/h
Required time = 160/18 + 160/12
= 8.89 + 13.33
= 22.22 hours
Quantity II: Find the time taken by boat E to go T to U
and return to T in still water.
Let, speed of boat E in still water = x Km/h
And speed of the stream on Sunday = y Km/h
x + y = 26 ----------- (i)
x − y = 14 ------------ (ii)

Adding (i) and (ii)

x + y + x – y = 26 + 14

=> 2x = 40

=> x = 20 Km/h

Required time = 91/20 x 2 = 9.1 hours

Hence, Quantity I > Quantity II

265) Answer: e)

Upstream speed of boat D on Sunday = 20/2 = 10 Km/h

Upstream speed of boat C on Sunday = 10 x 120/100 = 12 Km/h

Upstream speed of boat A on Sunday = 2/3 x 12 = 8 Km/h

Upstream speed of boat B on Sunday = 8 + 5 = 13 Km/h

Upstream speed of boat E on Sunday = 7/13 x 26 = 14 Km/h

Upstream speed of boat F on Sunday x 150/100 = 12

=> Upstream speed of boat F on Sunday = 12 x 100/150 = 8 Km/h

From I:

Let, speed of boat F in still water = x Km/h

And speed of the stream on Sunday = y Km/h

x + y = 12 --------- (i)

x – y = 8 ------------ (ii)

Adding (i) and (ii)

x + y + x – y = 12 + 8

=> 2x = 20

=> x = 20/2

=> x = 10 Km/h

From (i)

10 + y = 12

=> y = 12 – 10

=> y = 2 Km/h

Speed of the stream on Friday = 2 + 3 = 5 Km/h

Downstream speed on Friday = 10 + 5 = 15 Km/h

Upstream speed on Friday = 10 – 5 = 5 Km/h

But the direction of flow of stream is not known, hence, required values cannot be find out.

From II:

Upstream speed of boat F on Friday = 62.5/100 x 8 = 5 Km/h

Let, speed of boat F in still water = x Km/h

And speed of the stream on Sunday = y Km/h

x + y = 12 --------- (i)

x – y = 8 ------------ (ii)

Adding (i) and (ii)

x + y + x – y = 12 + 8

=> 2x = 20

=> x = 20/2

=> x = 10 Km/h

Now,

10 – y = 5

=> y = 5 Km/h

Downstream speed on Friday = 10 + 5 = 15 Km/h

But the direction of flow of stream is not known, hence, required values cannot be find out.

From I and II:

Even after combining I and II, required value cannot be find out.

Hence, both statements I and II together are not sufficient to answer the question.

Set 54:

Direction (266-270):

Ratio of share in the profit:

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Kusum	:	Malti	:	Rakhi	:	Heena	:	Farheen	:	Umang	:	Gauri	:	Mauli
(k)		: (k + 12000)		: (k + 30000)		: (k − 20000)		: (2k − 50000)		: (k + 60000)		: (k + 10000) :		-
+		+		+		+		+		+		+		+
(k + 40000):		(k + 12000)		: (k + 30000)		: (k − 20000)		: (2k − 50000)		: (k + 60000)		: (k + 10000) :		(2k − 10000)
+		+		+		+		+		+		+		+
(k + 40000):		(k + 23000)		: (k + 20000)		: (2k − 40000)		: (2k − 50000)		: (k + 60000)		: (k + 10000) :		(2k − 10000)
+		+		+		+		+		+		+		+
(k + 40000) :		(k + 23000)		: (k + 20000)		: (2k − 40000)		: (2k − 30000)		: (k/2 + 30000)		: (2k + 20000) :		(2k −10000)

= (4K + 120000): (4K + 70000): (4K + 100000): (6K − 120000): (8K − 180000): (3.5K + 210000): (5K + 50000): (6K − 30000)

According to the question

(4K + 70000)/[(4K + 120000) + (4K + 70000) + (4K + 100000) + (6K − 120000) + (8K − 180000) + (3.5K + 210000) + (5K + 50000) + (6K − 30000)] x 368000
= 46000

=> (4K + 70000)/(40.5K + 220000) × 368000/46000 = 1

=> (4K + 70000)/(40.5K + 220000) x 8 = 1

=> 32K + 560000 = 40.5K + 220000

=> 560000 − 220000 = 40.5K − 32K

=> 340000 = 8.5K

=> K = 40000

Hence, Ratio of share in the profit:

Kusum : Malti : Rakhi : Heena : Farheen : Umang : Gauri : Mauli = (4K + 120000) : (4K + 70000) : (4K + 100000) : (6K − 120000) : (8K − 180000) : (3.5K + 210000) : (5K + 50000) : (6K − 30000)

= (4 x 40000 + 120000): (4 x 40000 + 70000): (4 x 40000 + 100000): (6 x 40000 − 120000): (8 x 40000 − 180000): (3.5 x 40000 + 210000): (5 x 40000 + 50000): (6 x 40000 − 30000)

= 280000: 230000: 260000: 120000: 140000: 350000: 250000: 210000

= 28: 23: 26: 12: 14: 35: 25: 21

266) Answer: a)
Required difference = (26 − 12)/(28 + 23 + 26 + 12 + 14 + 35 + 25 + 21) x 368000
= 14/184 x 368000
= Rs.28000

267) Answer: d)
Initial amount invested by Farheen = 2K − 50000
= 2 x 40000 − 50000
= 80000 − 50000
= Rs.30000
Initial amount invested by Gauri = K + 10000
= 40000 + 10000
= Rs.50000
Required percentage = 30000/50000 x 100 = 60%

268) Answer: b)
Required ratio = 28: 21 = 4:3

269) Answer: a)
Initial amount invested by Malti = K + 12000
= 40000 + 12000

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= Rs.52000

Initial amount invested by Rakhi = K + 30000

= 40000 + 30000

= Rs.70000

Initial amount invested by Heena = K – 20000

= 40000 – 20000

= Rs.20000

Required sum = 52000 + 70000 + 20000 = Rs.142000

270) Answer: c)

Required percentage = (35 – 25)/25 x 100

= 10/25 x 100

= 40%

Set 55:

Direction(271-275):

FOR TRAIN D:

Let the length of train D = D m

Let speed of train D = d m/sec

We know = time taken to cross a tunnel = (length of train D + length of tunnel)/speed of train D

(D+140)/d = 2*(D/d)

D=> 140 m

FOR TRAIN F:

Length of train F= F m

Speed of train F = f m/sec

Train F can cross a tunnel double its length in 45 seconds.

ATQ,

F+2F/f =45

3F/f=45

F/f =15 seconds.

Time taken by train F to cross a person standing on platform is 15 seconds

FOR TRAIN A:

Let length of train A =A

Speed of train A =a

Also,

Time taken by train F to cross a person standing on platform = time taken by train A to cross a tunnel of length 120 m

We know,

Time taken to cross a tunnel

= (length of train A + length of tunnel)/speed of train A

So,

(A+120)/a =15 ------ (1)

FOR TRAIN B:

Let length of train B =B

Speed of train B = b

Time taken to cross a platform

= (length of train B + length of platform)/speed of train B

(B+180)/b =12 -------- (2)

Ratio of speed of train A and train B is 4: 5

SO,

a/b=4/5

Taking value of a and b from equation (1) and (2)

(A+120)*12/(B+180)*15 = 4/5

On simplifying

A+120 = B+180 ------- (3)

Also,

Ratio of length of train A and train B is 3: 2

Put A=3X

Put B=2x in equation (3)

3X+120=2X+180

X=60

Length of train A =180 m

Length of train B =120 m

FOR train C and train E:

Length of train C= C

Length of train E = E

Speed of train C =c

Speed of train E =e

ATQ,

C/c=2*(E/e)

Also e = (6/5)*c

So, C/E = 5/3

E= 2×A (given)

E=2*180=> 360

C=600

FOR Train C:

Length of goods train = length of train B +1.5*length of train B

=120+1.5*120 => 300

Relative speed of train C = (length of train C + length of goods train)/time taken

(c + 15) = (600 +300)/10

(c + 15) = 900/10

(c + 15) =90 m/sec

= > c =75 m/sec

= > e = 1.2c

= > e = 1.2*75= 90 m/sec

Ratio of speed of train D, E and F respectively is 4:6:3

So speed of train D =90/6*4=> 60

Speed of train F= 90/6*3 => 45

Trains	Speed of Train in m/sec	Length of the Train
A	20	180
B	25	120
C	75	600
D	60	140
E	90	360
F	45	-

271) Answer: a)

From statement A,

Let the length of tunnel be X m

(120+X)/25 = (600+X)/75

2X=240

X=120

From statement B,

Let the length of train F be Y m and Length of tunnel be X m

(Y + 120)/45 = (X + 120)/25

There are two unknown quantities. So the question cannot be answered from statement B alone.

From statement C,

There is no information about the train.

From statement A and B,

(Y + 120)/45 = (120+120)/25

On solving the equation

Length of train F=312 m

272) Answer: b)

Speed of train A (in km/hr) = 20 *18/5 = 72 km/hr

Speed of train B (in km/hr) = 25 * 18/5 = 90 km/hr

Distance travelled by train A in 30 mins = 72*(30/60) = 36 km

Distance traveled by both the train until problem arise in train B.

Relative speed of train = (72 + 90) = 162 km/hr

Distance travelled in 4 hours = 162*4 = 648 km

Distance remaining = (800 – 648 - 36) = 116 km

New speed of train B= 40 km/hr

New relative speed = (72 + 40) = 112 km/hr

Time remaining = 1 hr

Distance travelled in 1 hour = 112 *1 = 112 km

So distance remained between two trains is (116 - 112) = 4 km

273) Answer: d)

Required time

= (15.46 km + length of train C + length of train D)/relative speed of train C and D

Relative speed of train C and D = 75 + 60 => 135 m/s

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Required time = (15460 + 600 +140) / (75+60) = 120 seconds

274) Answer: c)
Speed of train D = 60*(18/5) = 216 km/hr
Speed of train E = 90*(18/5) = 324 km/hr
Distance travelled by train D in 20 mins.
= 216*(20/60) = 216*(1/3) = 72 km
Relative speed = (324 - 216) = 108 km/hr
Distance to cover by train E to overtake train D =
distance between train + sum of both the train = 72km
+ (140m+360m) => 72.5km
Time taken to overtake train D by train E = 72.5/108= 40 min

275) Answer: c)
Time taken by train A to overtake train B
= (length of train A + length of train B)/relative speed of train A and B
Relative speed of train A and B = 25 – 20 => 5 m/s
= (180+120)/5= 60 seconds
Time taken by train E to overtake D
= (length of train E + length of train D) /relative speed of train E and D
=500/30 =>16.66 seconds
Required percentage = (60-16.66)/16.66 *100= 260%

Set 56:
Direction (276-280):
Number of pink bottles in R1 = x
Number of yellow bottles in R1 = x-1
Number of green bottles in R3 = x-1
Number of green bottles in R1 = (x-1) +5 = x+4
Number of yellow bottles in R2 = (x-1) +5 = x+4
Number of red bottles in R3 = (x-1) +5 =x+4
Ratio of the number of green bottles in R2, red bottles in R3 and pink bottles in R3 = 1: 2: 1 = y: 2y: y
Number of red bottles in R3 = x+ 4 = 2y => y = (x+4)/2
Number of green bottles in R2 = y = (x+4)/2
Number of pink bottles in R3 = y = (x+4)/2
Number of red bottles in R2 = 90/100 * Number of red bottles in R3
= 90/100 * (x+4)
= 9/10 * (x+4)
Ratio of the number of pink bottles in R2, yellow bottles in R3 and red bottles in R1 = 8: 9: 7 = 8z: 9z: 7z --- (1)
Number of red bottles in R1 and R3 = 41 --- (2)
Number of red bottles in R1 = Number of red bottles in R3 + 1
Number of red bottles in R1 - Number of red bottles in R3 = 1 --- (3)
Solve the equation (2) and (3), we get
Number of red bottles in R1 = 21 and Number of red bottles in R3 = 20

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Substitute the value in equation (1)

Number of red bottles in R1 = 21 = 7z => z = 3

Number of pink bottles in R2 = 8z = 8* 3 = 24

Number of yellow bottles in R3 = 9z = 9* 3 = 27

Number of red bottles in R3 = 20 = x+4 => x = 20-4

x=16

	Pink	Green	Yellow	Red
R1	x= 16	x+4= 16+4 = 20	x-1=16-1 =15	21
R2	24	(x+4)/2 = (16+4)/2 = 10	x+4=16 + 4 =20	9/10 * (x+4) = 9/10*20 = 18
R3	(x+4)/2 = (16+4)/2 = 10	x-1=16-1 =15	27	x+4= 16+4 =20

Total number of bottles in each row is 72.

276) Answer: C

Required probability = 1 – Probability of none is pink

= 1 – $56c_2/72c_2$

= 1 – (56*55/72*71)

= 1 – 385/639

= (639-385)/639

= 254/639

277) Answer: B

Required ratio = (21+18+20): (20+10+15)

= 59: 45

278) Answer: C

Required percentage = [(16+24)-20]/20 * 100

= 20/20 * 100 = 100 %

279) Answer: A

Required average = (20+10+15)/3

= 45/3

= 15

280) Answer: E

Required difference = (15+20+27) - (16+24+10)

= 62 – 50 = 12

Set 57:

Direction (281-285):

281) Answer: a)

A's part of work = $20\% = \frac{1}{5}$

So, G did 1/5 of work and whole work in 30 days,

$\Rightarrow \frac{1}{5}$ work in $\frac{1}{5} \times 30 = 6$ days

Now, B also worked for 6 days.

B can complete 10% of work in 3 days.
So, B can complete the whole work in taken time

$= 100 \times \dfrac{3}{10}$

$= 30$ days

So, in 6 days,

B completed $\dfrac{6}{30} = \dfrac{1}{5}$ of work

Now, remaining work

$= 1 - (\dfrac{1}{5} + \dfrac{1}{5}) = \dfrac{3}{5}$

Now, E can complete 15% of work in 6 days.
So, E can complete the whole work in taken time

$= 100 \times \dfrac{6}{15}$

$= 40$ days

M can complete the work in 1/4th of No. of days of E.

$= \dfrac{1}{4} \times 40$

$= 10$ days.

So, M completed 3/5 work in taken time

$= \dfrac{3}{5} \times 10 = 6$ days

Hence, total number of days

$= 6 + 6 + 6$

$= 18$

282) Answer: c)

B can complete 10% of work in 3 days.
So, B can complete the whole work in

$100 \times \dfrac{3}{10} = 30$ days

As P is 20% more efficient than B

$\Rightarrow$ P can complete the work in 25 days

C can complete 25% of work in 6 days.
So, C can complete the whole work in

$100 \times \dfrac{6}{25} = 24$ days

As Q is 60% more efficient than B

$\Rightarrow$ Q can complete the work in 15 days

Now, P & Q worked for 5 days,

$\Rightarrow \dfrac{5}{25} + \dfrac{5}{15} = \dfrac{8}{15}$

Remaining work $= 1 - \dfrac{8}{15} = \dfrac{7}{15}$

D can complete 30% of work in 15 days.
So, D can complete the whole work in

$100 \times \dfrac{15}{30} = 50$ days

So, D does 7/15th of work in

$50 \times \dfrac{7}{15} = 23\dfrac{1}{3}$ days

283) Answer: d)

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People equally divided the work so each did 1/5 work now

A does $1/5^{th}$ work in 8 days

B does 1/10th (10%) work in 3 days

$\Rightarrow$ $1/5^{th}$ of work in 6 days

C does $1/4^{th}$ (25%) work in 6 days

$\Rightarrow$ $1/5^{th}$ work in 4.8 days

D does $3/10^{th}$ (30%) work in 15 days

$\Rightarrow$ $1/5^{th}$ work in 10 days

E does $3/20^{th}$ (15%) work in 6 days

$\Rightarrow$ $1/5^{th}$ work in 8 days

Hence, total work completed in

$=$ 8 + 4.8 + 6 + 10 + 8

$=$ 36.8 days

284) Answer: e)

A does 20% work in 8 days

So, 100% work in $100 \times \dfrac{8}{20} = 40$ days

B does 10% work in 3 days

So, 100% work in $100 \times \dfrac{3}{10} = 30$ days

1 day work of A and B together is:-

So, $\dfrac{1}{40} + \dfrac{1}{30} = \dfrac{7}{120}$

So in 10 days they completed 7/12 part of the work

Now, C completed 25% $= \dfrac{1}{4}$ of work

So now remaining work

$=$ $1 - (\dfrac{7}{12} + \dfrac{1}{4}) = \dfrac{1}{6}$

F complete $\dfrac{1}{6}$ work in 16 days,

So complete work in 96 days.

285) Answer: d)

B can complete 10% of work in 3 days.

So, B can complete the whole work in taken time

$=$ $100 \times \dfrac{3}{10}$

$=$ 30 days

Set 58:

Direction (286-290):

286) Answer: b)

To find the speed of the boat A in still water:

[120/(x-18)] = [220/(x+18)]

120x+ 2160=220x-3960

x=61.2 km/hr

To find the speed of the boat B in still water:

[120/(x-12)] = [165/(x+12)]

120x +1440= 165x-1980

x=76 km/hr

Required ratio= 61.2:76 =612:760 = 153: 190

287) Answer: d)

From above questions, we know that speed of the boat B in still water=76 km/hr

Then speed of the boat M in still water=76-46=30 km/hr

Let the speed of the stream of the boat M be x km/hr

Then, [126/ (30+x)] + [81/(30-x)]=15/2

After solving, we get, x= -6 and 12

Thus, speed of the stream= 12 km/hr

288) Answer: c)
Speed of the boat A in still water:
$[120/(x-18)] = [220/(x+18)]$
$120x+ 2160=220x-3960$
$x=61.2$ km/hr
After increasing, the speed of the boat A in still water=61.2*140/100=85.68 km/hr
And speed of the stream=18*190/100= 34.2 km/h/r
Thus, required time= 378/ (85.68-34.2)
=7.3 hours

289) Answer: d)
To find the speed of boat B in still water:
We know that Time= distance/ speed
Then, $[120/(x-12)] = [165/(x+12)]$
$120x +1440= 165x-1980$
$x=76$ km/hr
To find the speed of the boat D in still water:
$[200/(x-10)] = [320/(x+10)]$
$200x +2000= 320x-3200$
$x=43.33$ km/hr
Then the speed of boat B and boat D in still water together=76+43.33= 119.33 km/hr = 119 km/hr
And, speed of stream of the boat B and boat D together=12+10= 22 km/hr
Then Required percentage= [(119-22)/22]*100
= 441%

290) Answer: a)
We know that, time=Distance/Speed
Then, Required time= [480/(140-20)]+[480/(140+20)]
=4+3
= 7 hours

Set 59:
Direction (291-295):

291) Answer: a)
Let total time taken by the pipes is X hrs,
$(1/5 + 1/10 + 1/15) *(X – 5) + (1/5 + 1/15) *5 = 45/11$

292) Answer: c)
Work done by the two pipes in 1 hour = $(1/12) + (1/18)$
= $(15/108)$.
Time taken by these pipes to fill the tank = $(108/15)$ hrs
= 7 hours 12 min.
Due to leakage, time taken = 7 hours 12 min + 48 min
= 8 hours
Work done by two pipes and leak in 1 hour = 1/8.
Work done by the leak in 1 hour = $(15/108)$ -$(1/8)$ = $(1/72)$.
Leak will empty the full cistern in 72 hours.

293) Answer: a)
Let the waste pipe take 'X' time to empty the tank.
$(1/10 + 1/12 – 1/X) *60 = -1$
we will get X = 5 min
so capacity = 5*12 = 60ltr

294) Answer: b)
$(1/15 + 1/30) *T1 = 1/3$, T1 = 10/3 minutes
Now after leak is developed,
$[(1/15 + 1/30) – (1/3) *(1/15 + 1/30)] *T2 = 2/3$
T2 = 10 minutes.
So total time = 10 + 10/3 = 40/3 minutes

295) Answer: d)
$(1/12 + 1/15) + (1/12 + 1/20) = 17/60$ (in 2 hrs this much tank is filled)
so in 6 hrs 51/60 is filled.
Remaining, $9/60 = (1/12 + 1/15) *T$, so T = 1hr
so total = 6 + 1 = 7 hr

Set 60:
Direction (296-300):
296) Answer: b)
Ratio of profits of P: Q: R is

$4x*4 + 3y*4 + 6y*4: 2x*4 + 4y*4 + 8y*4: 3x*4 + 3y*4 + 6y*4$

$x = 200$

So ratio becomes

$(800+9y): (400+12y): (600+9y)$

Now

$(400+12y-600-9y)/(1800+30y) *$ total profit $= 1300$

And

$(800+9y+600+9y)/(1800+30y) *$ total profit $= 16250$

Divide both equations and solve, $y = 200$

So now ratio becomes

$(800+9y): (400+12y): (600+9y)$ [put $y = 200$]

$13: 14: 12$

And $2/39 *$ total profit $= 1300$

Solve, total profit $=$ Rs 25350

297) Answer: a)

3 equal intervals in 12 months $= 4$ months each

P invests $– 4x, 3y$ and $6y$

Q invests $– 2x, 4y$ and $(4y+200)$

R invests $– 3x, 3y$ and $(3y+200)$

Now given that $3x + 3y = 4x + 3y – 200$

Solve, $x = 200$

Ratio of profits of P: Q: R is

$4x*4 + 3y*4 + 6y*4: 2x*4 + 4y*4 + (4y+200)*4: 3x*4 + 3y*4 + (3y+200)*4$

$(4x + 9y): (2x + 8y + 200): (3x + 6y + 200)$

Put, $x = 200$

$(800+9y): (600+8y): (800+6y)$

Now:

$(600+8y)/(2200+23y) = 11/34$

Solve, $y = 200$

So total investment of R $= 3x +3y + (3y+200) =$ Rs 2000

298) Answer: c)

Ratio of profits of P: Q: R is

$4x*4 + 3y*4 + 6y*4: 2x*4 + 4y*4 + 8y*4: 3x*4 + 3y*4 + 6y*4$

$x = 200$

So ratio becomes

$(800+9y): (400+12y): (600+9y)$

Now

$(400+12y-600-9y)/(1800+30y) *$ total profit $= 1300$

And

$(800+9y+600+9y)/(1800+30y) *$ total profit $= 16250$

Divide both equations and solve, $y = 200$

So now ratio becomes

$(800+9y): (400+12y): (600+9y)$ [put $y = 200$]

$13: 14: 12$

299) Answer: a)

(J's profit): (K's profit): (C's profit)

$600 *12: 500 * 4: 5x * 8$

$= 180: 50: x$

∴ C's profit $= X/(230+X)*24000 = 5600$

$x = 70\%$

300) Answer: b)

Ratio of the equivalent capitals of A, B and C for 1 month

$= (20000*6 + 12000*6): (28000*6 +20000*6): (36000*6 +44000*6)$

$(120 +72):(168 + 120): (216 +264)$

$(192: 288: 480) = 2: 3: 5$

If the total profit at end of the year be x

C's share

$5/10 * X = X/2$

$X/2 = 12550$

$X= 25100$