12/03/2025

Code-B

Aakash
Medical | IIT-JEE | Foundations

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Udyog Vihar, Gurugram, Haryana - 122015, ***Ph.***011-47623456

MM : 720 Final Test Series(P1)-2024-25_Test-01B **Time : 180 Min.**

Topics Covered:
Physics: Units & Measurements, Motion in a Straight Line, Motion in a Plane
Chemistry: Amines, Biomolecules, Principles Related to Practical Chemistry
Botany: Ecosystem, Biodiversity and Conservation
Zoology: Animal Kingdom

General Instructions :
Duration of Test is 3 hrs.
The Test consists of 180 questions. The maximum marks are 720.
There are four parts in the question paper consisting of Physics, Chemistry, Botany and Zoology having 45 questions in each part of equal weightage.
Each question carries +4 marks. For every wrong response, –1 mark shall be deducted from the total score. Unanswered/unattempted questions will be given no marks.
Use blue/black ballpoint pen only to darken the appropriate circle.
Mark should be dark and completely fill the circle.
Dark only one circle for each entry.
Dark the circle in the space provided only.
Rough work must not be done on the Answer sheet and do not use white fluid or any other rubbing material on the Answer sheet.

PHYSICS

1. Which of the following is not equal to joule?

(1) watt × second

(2) coulomb × volt

(3) $(\text{ampere})^2 \times \text{ohm}$

(4) volt × ampere × second

2. The displacement of a particle moving in a straight line is given as $x = (a + bt + ct^2)$ m, where, a, b and c are constants. The $\left[\frac{ab^2}{c}\right]$ is equal to the unit of

(1) Area

(2) Volume

(3) Area per second

(4) Volume per second

3. If $1\ \text{kg}^2\ \text{m}^2\ \text{s}^{-2} = n\ \text{g}^2\ \text{cm}^2\ \text{s}^{-2}$, then n is equal to

(1) 10^7

(2) 10^8

(3) 10^9

(4) 10^{10}

4. In the measurement 2870.5 m, there are

(1) 4 significant figures

(2) 4 reliable digits

(3) 5 significant figures

(4) Both (2) and (3)

5. Given below are two statements:
Statement I: All zeros between two non-zero digits are significant only if the number does not have decimal point.
Statement II: For a number with a decimal, the trailing zero(s) are significant.
In the light of the above statements, choose the most appropriate answer from the options given below.

(1) Statement I is correct but statement II is incorrect

(2) Statement I is incorrect but statement II is correct

(3) Both statement I and statement II are correct

(4) Both statement I and statement II are incorrect

6. Which of the following formula for kinetic energy (*k*) can be ruled out on the basis of dimensional arguments. (Where symbols have their usual meanings.)

(a) $k = m^2v^2$

(b) $k = \frac{1}{2}mv^2$

(c) $k = ma$

(d) $k = \frac{3}{16}mv^2$

(e) $k = mvt$

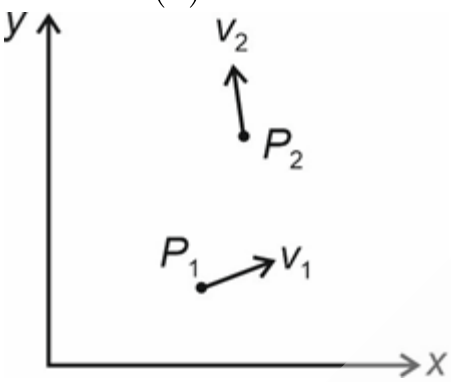
(1) (a) and (c) only

(2) (a), (c) and (d) only

(3) (a), (c), (d) and (e) only

(4) (a), (c) and (e) only

7. A particle is moving in *xy*-plane. If it is at point P_1 at time t_1 and at point P_2 at time t_2, then direction of average acceleration $\left(\vec{a}\right)$ is best represented by



(1) 

(2) 

(3) 

(4) 

8. A boy stands on the edge of a roof 4.9 m above the ground and throws a stone horizontally with a speed of 9.8 m s^{-1}. The stone will hit the ground at an angle of θ with horizontal, where θ is

(1) 45°

(2) $\tan^{-1}(2)$

(3) $\tan^{-1}\left(\frac{1}{2}\right)$

(4) 60°

9. A particle is projected at angle 60° with horizontal with an initial speed $20\sqrt{2}$ m s^{-1}. When it makes an angle 45° with horizontal, its speed *v* is

(1) 10 m s^{-1}

(2) 20 m s^{-1}

(3) $10\sqrt{2}$ m s^{-1}

(4) $10\sqrt{3}$ m s^{-1}

10. A particle is moving with angular speed of 20π rad s^{-1} in a circular orbit of radius 10 cm. Its centripetal acceleration is equal to [given $\pi^2 = 10$]

(1) 40 m s^{-2}

(2) 4 m s^{-2}

(3) 400 m s^{-2}

(4) Zero

11. A boat is sent across a river in a perpendicular direction with a velocity of 4 km/h. If the resultant velocity of the boat is 5 km/h, then velocity of the river is

(1) $3\sqrt{2}$ km/h

(2) $\sqrt{41}$ m s^{-1}

(3) 4 km/h

(4) 3 km/h

12. A ball is thrown vertically upward with a certain speed. It passes through the same point at 4 seconds and 8 seconds from the start. The maximum height achieved by the ball is

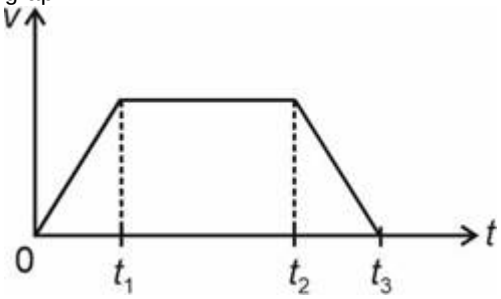
(1) 90 m

(2) 180 m

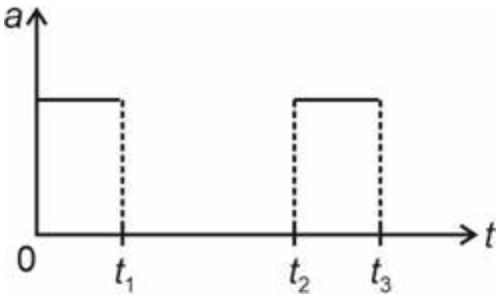
(3) 80 m

(4) 160 m

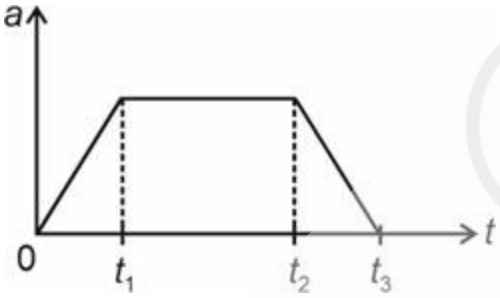
13. For the given velocity-time (*v*-*t*) graph of a particle moving in a straight line, choose the correct acceleration-time (*a*-*t*) graph.



(1)



(2)



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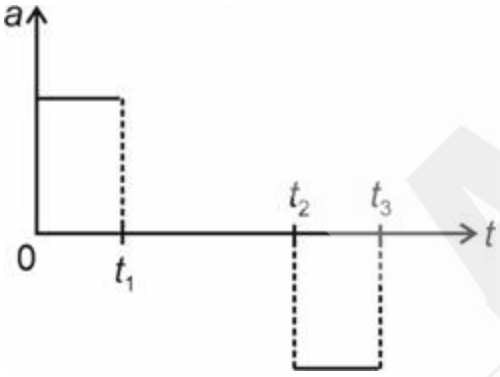
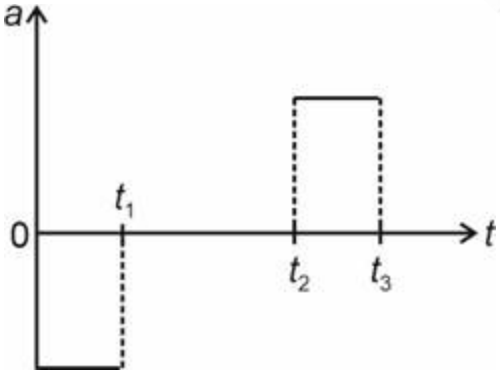
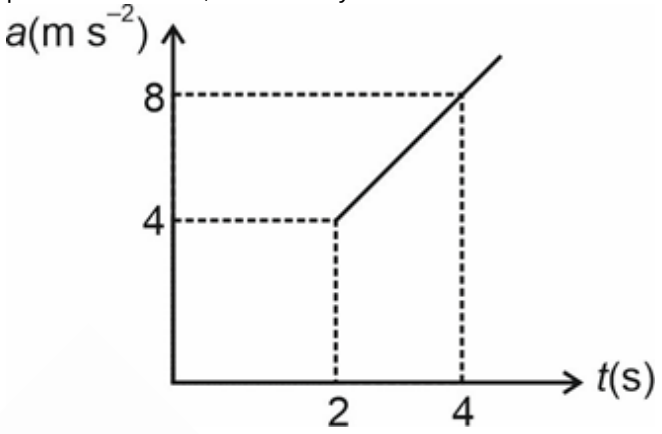


(4)



14. The acceleration-time (*a*-*t*) graph of a particle moving in a straight line is shown in the figure. If initial velocity of particle is 2 m s^{-1}, then velocity at *t* = 3 s is



(1) 6 m s^{-1}

(2) 8 m s^{-1}

(3) 5 m s^{-1}

(4) 7 m s^{-1}

15. A balloon is moving upwards with a constant speed of 20 m s^{-1}. A stone is dropped from balloon at *t* = 0, when the balloon is at height 25 m above the ground. The stone hits the ground with a speed of [*g* = 10 m s^{-2}]

(1) 20 m s^{-1}

(2) 30 m s^{-1}

(3) 40 m s^{-1}

(4) 60 m s^{-1}

16. The position of a body moving along x-axis as a function of time *t* is given as, $x = t^2 + 2t$ (metre). The velocity of the body at *t* = 1 s is

(1) 4 m/s

(2) 2 m/s

(3) 7 m/s

(4) 9 m/s

17. A particle moving with a constant acceleration in a straight line passes through two points *A* and *B* with speed 15 m s^{-1} and 20 m s^{-1} respectively. The speed of particle at mid-point of *AB* is

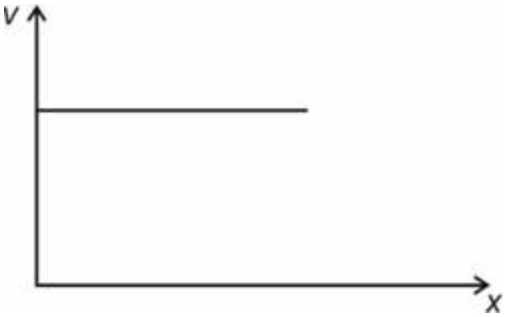
(1) 16 m s^{-1}

(2) $\frac{25}{\sqrt{2}}$ m s^{-1}

(3) $\frac{27}{\sqrt{2}}$ m s^{-1}

(4) 20 m s^{-1}

18. Velocity vs displacement graph of a particle moving in a straight line is shown below. The acceleration of the particle is



(1) A non-zero constant

(2) Increasing linearly with *x*

(3) Increasing parabolically with *x*

(4) Zero

19. The mean length of an object is 5 cm. The measurement which is most accurate among the following is

(1) 4.9 cm

(2) 4.805 cm

(3) 5.25 cm

(4) 5.4 cm

20. Choose the correct equation of trajectory for a ground to ground projectile. (Where symbols have their usual meanings)

(1) $y = x\ \tan\ \theta + \frac{gx^2}{2u^2\ \cos^2\ \theta}$

(2) $y = x\ \tan\ \theta - \frac{gx^2}{2u^2\ \cos^2\ \theta}$

(3) $y = x\ \tan\ \theta - \frac{gx}{2u^2\ \cos^2\ \theta}$

(4) $y = x\tan\theta + \frac{gx^2}{2u\cos^2\theta}$

21. Let $\left|\vec{P}\right| = \left|\vec{Q}\right| = P$. If $\vec{P}$ and $\vec{Q}$ are at an angle 120° with each other, then the magnitude of resultant of $\vec{P}$ and $\vec{Q}$ is

(1) *P*

(2) 2*P*

(3) $\sqrt{2}P$

(4) $\sqrt{3}P$

22. The distance travelled by an object starting from rest and moving with an acceleration $\frac{3}{4}\ \mathrm{m/s^2}$, in the 3rd second is

(1) $\frac{15}{8}$ m

(2) $\frac{15}{7}$ m

(3) $\frac{10}{3}$ m

(4) $\frac{13}{3}$ m

23. A ball is thrown vertically upwards with velocity of 20 m/s from top of multistorey building 30 m high. How high will the ball rise above ground (g = 10 ms^{-2})?

(1) 40 m

(2) 45 m

(3) 50 m

(4) 60 m

24. The velocity of particle at any time *t* is given by $v = bt + \frac{a}{t}$ where *a* and *b* are constants. The dimension of $\frac{a}{b}$ is

(1) [MLT^2]

(2) [M^{0}L^{0}T^2]

(3) [ML^{-1}T^{-1}]

(4) [M^{0}LT^{-1}]

25. A projectile with same speed of projection has same range R for two angles of projection. If T_1 and T_2 are the time of flights in two cases, then

(1) $T_1T_2 = \frac{R}{g}$

(2) $T_1T_2 = \frac{2R}{g}$

(3) $T_1T_2 = \frac{2g}{R}$

(4) $T_1T_2 = \frac{R}{2g}$

26. An object revolves uniformly in a circle and completes 200 revolutions per minute. The time period of revolution is

(1) 0.6 s

(2) 0.3 s

(3) 1 s

(4) 2 s

27. A particle is moving in straight line with a velocity $v = (3 + 6t)$ cm/s. The displacement of the particle in the time interval from t = 0 s to t = 2 s, is

(1) 10 cm

(2) 12 cm

(3) 18 cm

(4) 24 cm

28. Dimensional formula for coefficient of self-induction is

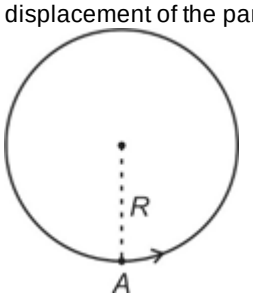
(1) $[ML^2T^{-2}A^{-2}]$

(2) $[MLT^{-2}A^{-2}]$

(3) $[ML^2T^{-1}A^{-2}]$

(4) $[ML^2T^{-2}A^{-1}]$

29. A particle is moving on a circular path of radius '*R*' as shown in the figure. If it starts from point *A*, then displacement of the particle after rotating through 780° is



(1) $R\sqrt{3}$

(2) $R\sqrt{2}$

(3) *R*

(4) Zero

30. A physical quantity $P = \frac{\sqrt{ABC^2}}{D^3}$ is determined by measuring *A*, *B*, *C* and *D* separately with the percentage error of 2%, 2%, 4% and 1% respectively. Maximum percentage error in the value of *P* will be

(1) 7%

(2) 9%

(3) 12%

(4) 6%

31. Given below are two statements: one is labelled as Assertion A and the other is labelled as Reason R.
Assertion (A): Magnitude of average velocity can never be greater than average speed.
Reason (R): Magnitude of displacement can be greater than distance.

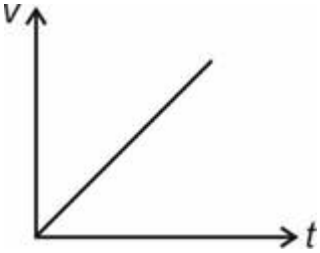
(1) Both Assertion & Reason are true and the reason is the correct explanation of the assertion

(2) Both Assertion & Reason are true but the reason is not the correct explanation of the assertion

(3) Assertion is true statement but Reason is false

(4) Both Assertion and Reason are false statements

32. Velocity-time (*v*-*t*) graph of a particle moving in a straight line on *x*-axis is shown below.



Corresponding to above *v*-*t* curve, match the corresponding entries in column-I with those of column-II (where symbols have their usual meaning).

	Column-I		Column-II
a.	*a*-*t* graph	(i)	Straight line with zero slope
b.	*v*-*x* graph	(ii)	Parabola with decreasing slope
c.	*x*-*t* graph	(iii)	Parabola with increasing slope
d.	*a*-*v* graph	(iv)	Straight line with positive slope

(1) a(i), b(ii), c(iii), d(i)

(2) a(i), b(iii), c(ii), d(iv)

(3) a(i), b(iii), c(ii), d(iii)

(4) a(i), b(ii), c(ii), d(i)

33. Two trains of length 120 m and 80 m are running in opposite directions with speed 36 km/h and 54 km/h respectively. In what time, they will completely cross each other?

(1) 8 s

(2) 16 s

(3) 24 s

(4) 40 s

34. A projectile is fired horizontally with speed 10 m s^{-1} from a tower of height 30 m. After 1 second, the tangential acceleration of the projectile is

(1) *g*

(2) Zero

(3) $\frac{g}{2}$

(4) $\frac{g}{\sqrt{2}}$

35. The kinetic energy (*k*) depends upon momentum (*P*) and mass (*m*) of a particle as $k \propto P^x m^y$, then value of $(x - y)$ is equal to

(1) 1

(2) –1

(3) 2

(4) 3

36. The equation of path of a projectile, projected obliquely from the ground under gravity is given by $y = 2x - \frac{5}{4}x^2$, where '*x*' and '*y*' are in metre. *x* and *y* are along horizontal ground and vertical direction respectively. The speed of projection is

(1) $2\sqrt{3}$ m s^{-1}

(2) $2\sqrt{5}$ m s^{-1}

(3) $2\sqrt{7}$ m s^{-1}

(4) $2\sqrt{2}$ m s^{-1}

37. The position of a particle is expressed as $\vec{r} = \left(2t^3\hat{i} + 6t\hat{j}\right)$ m. Which of the following statement is wrong?

(1) Velocity in *y*-direction is independent of time

(2) Acceleration in *x*-direction is directly proportional to time

(3) Particle is moving in *z*-direction without any acceleration

(4) Magnitude of velocity at $t = 0$ is 6 m/s

38. If least count of an instrument is taken as absolute error, then relative error in measurement of length 31.4 cm by a metre scale is

(1) $\frac{0.01}{31.4}$

(2) $\frac{0.1}{31.4}$

(3) $\frac{1.0}{31.4}$

(4) $\frac{0.001}{31.4}$

39. A point object moves in a straight line so that its position *x*(m) at any instant *t*(s) is given by $x = t^2 + 2$. Acceleration of the object at $t = 1$ s is

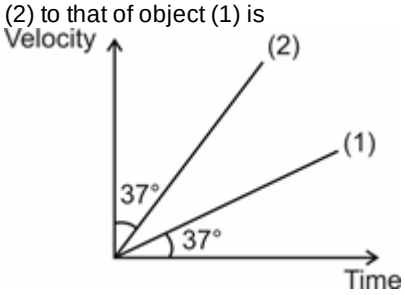
(1) 1 m/s^2

(2) 2 m/s^2

(3) 3 m/s^2

(4) 4 m/s^2

40. Velocity–time graph of two objects moving in same direction is given in the figure below. Ratio of acceleration of object (2) to that of object (1) is



(1) 1

(2) 16/9

(3) 9/16

(4) 4/5

41. The equation of real gas is given as $\left(P + \frac{a}{V^2}\right)(V - b) = nRT$, then which of the following term is dimensionless? (All symbols have their usual meanings)

(1) a/V^2

(2) b

(3) $\frac{ab}{V^2}$

(4) $\frac{PV^2}{a}$

42. Two particles *A* and *B* are projected with same speed from the ground at angles of 30° and 60° with horizontal. If H_1, H_2 are heights and R_1, R_2 are ranges at 30° and 60° respectively, then

(1) $R_1 > R_2$

(2) $H_1 > H_2$

(3) $H_1 < H_2$

(4) $R_1 < R_2$

43. The angle of projection of a projectile for which range is double the maximum height, will be

(1) $\theta = \tan^{-1}(2)$

(2) $\theta = \tan^{-1}(4)$

(3) $\theta = 45°$

(4) $\theta = \tan^{-1}\left(\frac{1}{2}\right)$

44. The physical quantities having same dimensions are

(1) Momentum and planck's constant

(2) Stress and energy density

(3) Tension and surface tension

(4) Speed and $(\mu_0\varepsilon_0)^{\frac{1}{2}}$

45. A motor vehicle left the point *A* and reached the point *B* by travelling in a straight line for 2 hours. The vehicle travelled half of the distance at a speed of v_1 = 40 km/h and other half at a speed of v_2 = 60 km/h. The distance between *A* and *B* is

(1) 86 km

(2) 96 km

(3) 76 km

(4) 106 km

CHEMISTRY

46. Given below are the two statements.
Statement I: Reaction of glucose with hydroxylamine confirms the presence of carbonyl group in glucose.
Statement II: Reaction of glucose with acetic anhydride confirms the presence of 2-OH groups in glucose.
In the light of above statements, choose the **correct** answer

(1) Statement I is correct but statement II is incorrect

(2) Statement I is incorrect but statement II is correct

(3) Both statement I and statement II are correct

(4) Both statement I and statement II are incorrect

47. Consider the following statements regarding fructose
(a) It is a ketohexose.
(b) It is a natural disaccharide
(c) It is used as a sweetener in it's pure form.
(d) It is a levorotatory compound.
The correct statement(s) is/are

(1) (a), (c) and (d) only

(2) (b) and (c) only

(3) (b) only

(4) (a) and (d) only

48. Which among the following is a non-reducing sugar?

(1) Fructose

(2) Glucose

(3) Sucrose

(4) Lactose

49. Select the correct statement among the following.

(1) Fibrous proteins are generally soluble in water

(2) Albumin is an example of fibrous protein

(3) Change in pH does not affect the primary structure of protein

(4) Alanine is a dipeptide

50. Given below are two statements:
Statement-I : The two strands of DNA are complementary to each other.
Statement-II : In DNA, hydrogen bonds are formed between specific pairs of bases.
In the light of the above statements, choose the **correct** answer from the options given below

(1) Statement I is correct but statement II is incorrect

(2) Statement I is incorrect but statement II is correct

(3) Both statement I and statement II are correct

(4) Both statement I and statement II are incorrect

51. Lactose is composed of

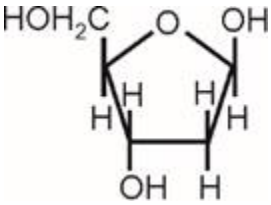
(1) α-D-Galactose and α-D-Glucose

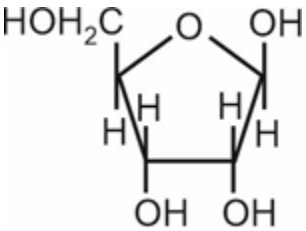
(2) α-D-Galactose and β-D-Glucose

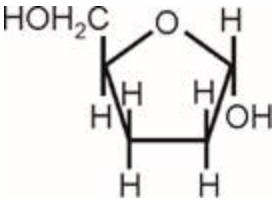
(3) β-D-Galactose and α-D-Glucose

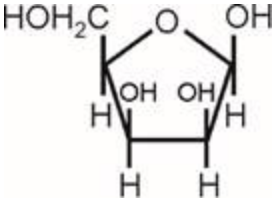
(4) β-D-Galactose and β-D-Glucose

52. Identify the correct structure of sugar moiety present in DNA

(1) 

(2) 

(3) 

(4) 

53. Which of the following base is not found in RNA?

(1) Adenine

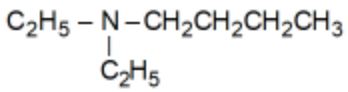
(2) Guanine

(3) Thymine

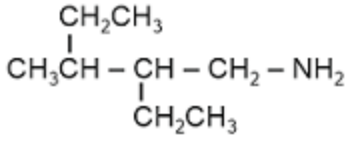
(4) Uracil

54. The structure of the compound with IUPAC nomenclature N, N-diethylbutan-1-amine is

(1) C_2H_5—NH—$CH_2CH_2CH_2CH_3$

(2) 

(3) C_2H_5—NH—C_2H_5

(4) 

55. Given below are the two statements.
Statement I: Phenolphthalein (HPh) is the best suitable reagent for strong base-weak acid type of titrations.
Statement II: Stability of lyophobic sols is due to charge on colloidal particles.
In the light of above statements, choose the **correct** answer

(1) Statement I is correct but statement II is incorrect

(2) Statement I is incorrect but statement II is correct

(3) Both statement I and statement II are correct

(4) Both statement I and statement II are incorrect

56. On addition of β-naphthol to diazonium salt, coupling reaction takes place to form a dye of

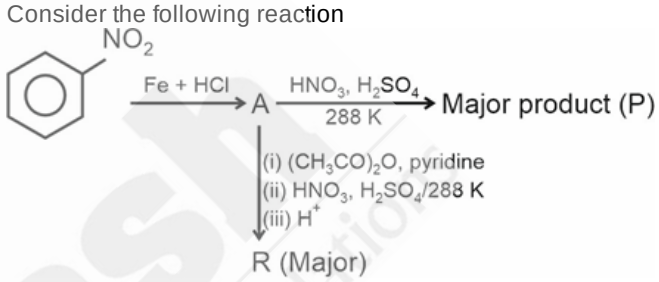
(1) Scarlet red colour

(2) Pink colour

(3) Brown colour

(4) Yellow colour

57. Consider the following reaction



(i) 'P' and 'R' are positional isomers
(ii) 'P' and 'R' are identical
(iii) 'A' reacts with Br_2 water at room temperature to give white precipitate
The correct statement(s) is/are

(1) (i) only

(2) (ii) and (iii) only

(3) (i) and (ii) only

(4) (i), (ii) and (iii)

58. Given below are two statements:
Statement-I: Acetylation of $-NH_2$ group of aniline reduces its activating effect towards electrophilic substitution.
Statement-II: Acetyl group attached to benzene ring has electron withdrawing nature.
In the light of the above statements, choose the **correct** answer from the options given below

(1) Statement I is correct but statement II is incorrect

(2) Statement I is incorrect but statement II is correct

(3) Both statement I and statement II are correct

(4) Both statement I and statement II are incorrect

59. Match List-I with List-II

	List-I (Colour of the flame observed by naked eyes)		**List-II (Metal ion)**
(a)	Green flame with blue centre	(i)	Sr^{2+}
(b)	Crimson red	(ii)	Cu^{2+}
(c)	Apple green	(iii)	Ca^{2+}
(d)	Brick red	(iv)	Ba^{2+}

Choose the **correct** option.

(1) (a)-(ii), (b)-(i), (c)-(iv), (d)-(iii)

(2) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)

(3) (a)-(ii), (b)-(iv), (c)-(iii), (d)-(i)

(4) (a)-(iv), (b)-(i), (c)-(iii), (d)-(ii)

60. The correct order of basicity of the given amines in aqueous solution is

(1) $(C_2H_5)_2NH > C_2H_5NH_2 > (C_2H_5)_3N > NH_3$

(2) $NH_3 > C_2H_5NH_2 > (C_2H_5)_2NH > (C_2H_5)_3N$

(3) $C_2H_5NH_2 > NH_3 > (C_2H_5)_2NH > (C_2H_5)_3N$

(4) $(C_2H_5)_2NH > (C_2H_5)_3N > C_2H_5NH_2 > NH_3$

61. Given below are the two statements.
Statement I: Lead chromate is insoluble in hot sodium hydroxide solution.
Statement II: Lead sulphate is soluble in ammonium acetate solution due to formation of tetraacetoplumbate (II) ions.
In the light of above statements, choose the **correct** answer

(1) Statement I is correct but statement II is incorrect

(2) Statement I is incorrect but statement II is correct

(3) Both statement I and statement II are correct

(4) Both statement I and statement II are incorrect

62. Identify 'X' in the following reaction

$X + SCN^- \rightarrow$ Blood red colour solution.

Choose the **correct** option.

(1) Ca^{2+}

(2) Al^{3+}

(3) Ba^{2+}

(4) Fe^{3+}

63. Lyophilic and lyophobic sol respectively are

(1) Egg albumin and starch

(2) Starch and gum

(3) Aluminium hydroxide and starch

(4) Starch and arsenic sulphide

64. Choose the option with correct number of white precipitates, among the following
AgI, $(COO)_2Ca$, $BaCrO_4$, AgBr, AgCl, PbS

(1) 5

(2) 4

(3) 3

(4) 2

65. Sodium carbonate extract of a salt with sodium nitroprusside gives purple (or violet) coloured complex. The possible anion present in the given salt is

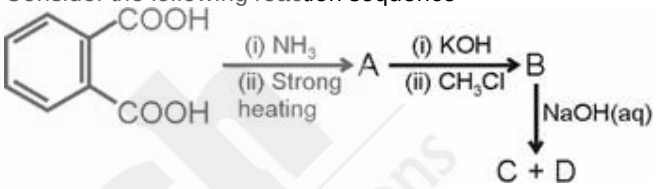
(1) NO_2^-

(2) CO_3^{2-}

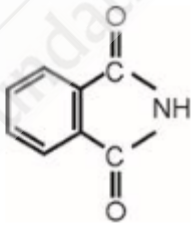
(3) NO_3^-

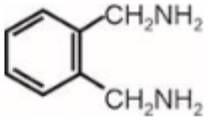
(4) S^{2-}

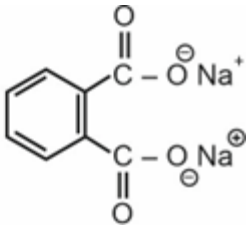
66. Consider the following reaction sequence

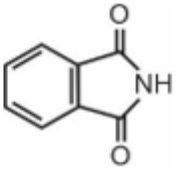


If 'C' is an amine then C and A respectively are

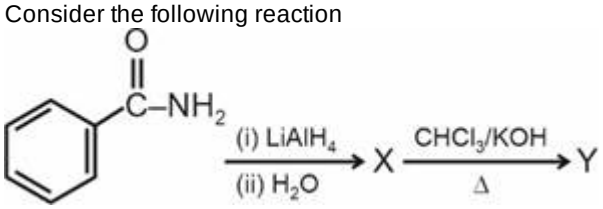
(1) $C_2H_5NH_2$ and 

(2) $C_2H_5NH_2$ and 

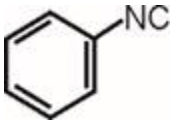
(3) CH_3NH_2 and 

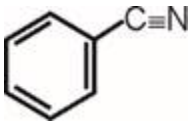
(4) CH_3NH_2 and 

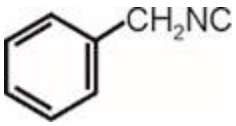
67. Consider the following reaction

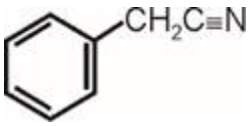


Identify Y in the reaction

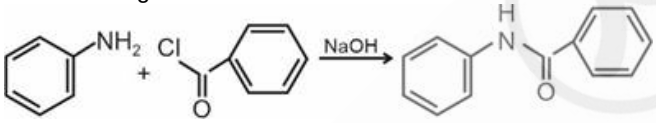
(1) 

(2) 

(3) 

(4) 

68. The following reaction



is known by the name

(1) Acetylation reaction

(2) Schotten-Baumann reaction

(3) Friedel-Crafts reaction

(4) HVZ reaction

69. Among the following, the essential aromatic amino acid is

(1) Tryptophan

(2) Arginine

(3) Tyrosine

(4) Valine

70. Enzyme which is responsible to convert sucrose into glucose and fructose, is

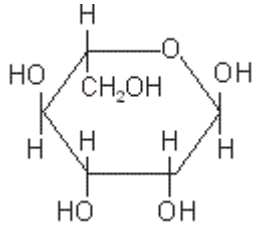
(1) Invertase

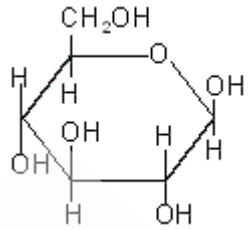
(2) Zymase

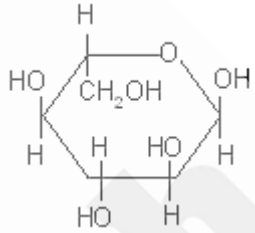
(3) Urease

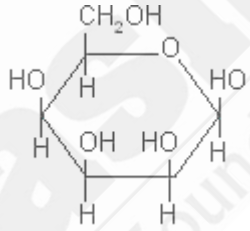
(4) Pepsin

71. The correct structure of β-D-glucopyranose is

(1) 

(2) 

(3) 

(4) 

72. In Borax bead test, compound formed is metal _____

(1) Metaborate

(2) Tetraborate

(3) Borazine

(4) Orthoborate

73. Cation that gives brown residue on charcoal cavity test is

(1) Pb^{2+}

(2) Cd^{2+}

(3) As^{3+}

(4) Zn^{2+}

74. Chromyl chloride test is given by

(1) Na_2S

(2) NaBr

(3) NaI

(4) NaCl

75. Salt reacts with warm dilute H_2SO_4, gives rotten egg like smell, indicates the presence of

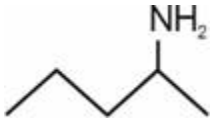
(1) Cl^-

(2) CO_3^{2-}

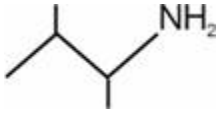
(3) S^{2-}

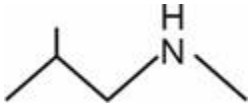
(4) NO_3^-

76. Compound (A) having molecular formula $C_5H_{13}N$ on reaction with Hinsberg's reagent gives compound (B) which is insoluble in aqueous alkali. The compound (A) could be

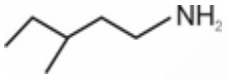
(1) 

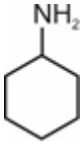
(2) 

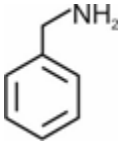
(3) 

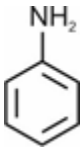
(4) 

77. The compound which cannot be synthesised by Gabriel phthalimide synthesis is….

(1) 

(2) 

(3) 

(4) 

78. CH_3NHCH_3 and $(CH_3)_3N$ can be chemically distinguished by

(1) Carbylamine test

(2) Benedict test

(3) Hinsberg's reagent

(4) Lucas test

79. Glucose on heating with HI gives

(1) Gluconic acid

(2) Saccharic acid

(3) Hexanal

(4) n-Hexane

80. Which of the following amino acid contain sulphur?

(1) Lysine

(2) Glutamine

(3) Proline

(4) Methionine

81. Consider the following statements:

Statement I: The α-form of glucose is obtained by the crystallisation from concentrated solution of glucose at 303 K.

Statement II: Maltose is a reducing sugar.

In the light of the above statements, choose the correct answer from the options given below:

(1) Both statement I and statement II are correct

(2) Both statement I and statement II are incorrect

(3) Statement I is correct but statement II is incorrect

(4) Statement I is incorrect but statement II is correct

82. Incorrect statement about starch is

(1) Amylopectin is one of its component

(2) Amylose constitutes about 15-20% of starch

(3) Cereals and roots have high content of starch

(4) It is a polymer of β-D-fructose

83. Fat insoluble vitamin among the following is

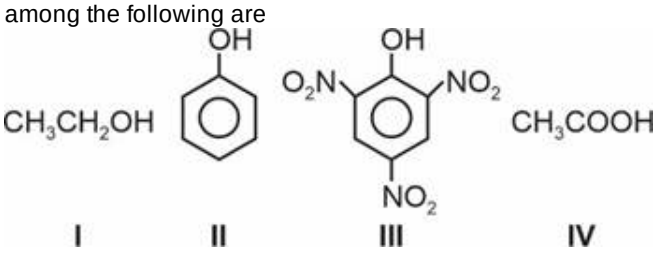
(1) Vitamin-K

(2) Vitamin-C

(3) Vitamin-D

(4) Vitamin-E

84. The solution of compounds which turn blue litmus red among the following are



I II III IV

(1) I, II only

(2) II, III and IV only

(3) III and IV only

(4) I, II, III and IV

85. Which among the following is an optically inactive amino acid?

(1) Proline

(2) Lysine

(3) Glycine

(4) Alanine

86. Working pH range of methyl orange indicator, is

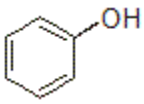
(1) 3.1 to 4.5

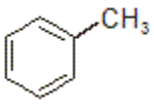
(2) 4.2 to 6.2

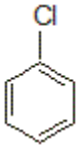
(3) 6.2 to 8.2

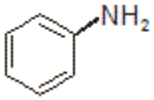
(4) 8.2 to 10.2

87. Out of the following aromatic compounds, choose the one which will yield significant amount of meta nitro product on nitration.

(1) 

(2) 

(3) 

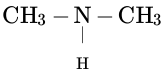
(4) 

88. $CH_3 - C \equiv N \xrightarrow{H_2/Ni}$ Product

The product is,

(1) $CH_3 - NH_2$

(2) $CH_3 - CH_2 - NH_2$

(3) 

(4) $CH_3 - CH_3$

89. Consider the following statements
(a) AgI is insoluble in ammonia solution
(b) Na_2S on treatment with concentrated HNO_3 give SO_2 gas
(c) AgCl is soluble in excess of ammonia solution.
The correct statement are

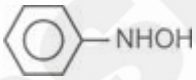
(1) (a) and (b) only

(2) (a) and (c) only

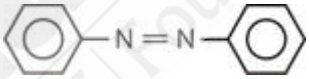
(3) (b) and (c) only

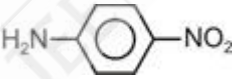
(4) (a), (b) and (c)

90. Nitrobenzene undergoes reaction with zinc dust and aq. NaOH to give

(1) 

(2) 

(3) 

(4) 

BOTANY

91. All of the following are correct for ecological pyramids, **except**

(1) Saprophytes are not given any place in pyramid.

(2) It does not take into account the same species belonging to two or more trophic levels.

(3) The base of any pyramid is occupied by the herbivorous organisms.

(4) It assumes only simple food chain.

92. The rate of biomass production is expressed in terms of

(1) $(kcal\ m^{-2})yr^{-1}$

(2) $(kcal\ m^{-1})yr^{-2}$

(3) $\frac{kcal\ m^2}{yr^2}$

(4) $gm^{-2}yr^2$

93. Find the **odd** one out w.r.t. ecosystem function.

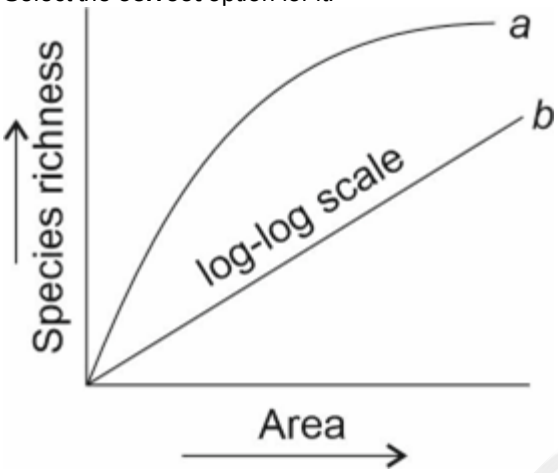
(1) Productivity

(2) Decomposition

(3) Stratification

(4) Energy flow

94. The following graph shows the species area relationship. Select the **correct** option for it.



(1) The rectangular hyperbola (represented by a) is formed on the basis of equation $S = AC^Z$

(2) In the equation of species-area relationship, the value of Z lies between 0.6 to 1.2 for very large area like an entire continent

(3) The slope of line (as represented in b) becomes much steeper for small areas

(4) The slope of the line are different for the plants in Britain, birds in California or molluscs in New York and varies between 2.1 – 2.8.

95. Choose the **correct** statement w.r.t. mineralisation that occurs during the decomposition of detritus.

(1) It is not an important step in the process of decomposition

(2) It involves degradation of detritus into simpler organic substances by fungal and bacterial enzyme.

(3) It is the process of accumulation of light coloured amorphous substance

(4) It is the release of inorganic substances from humus or organic matter

96. The number of trophic levels in the GFC is restricted because

(1) Only 10% of the energy is transferred to the next trophic level from lower trophic level

(2) Standing crop is highest at the producer level

(3) The amount of biomass produced at the first trophic level is not enough to support further trophic level

(4) It does not include decomposers in the food chain

97. Which of the following statements is/are **correct**?
(a) Annual net primary productivity of oceans is more than that of terrestrial ecosystem.
(b) Temperature does not affect the primary productivity of the ecosystem.
(c) The rate of formation of new organic matter by consumers is called secondary productivity.

(1) All (a), (b) and (c)

(2) Only (a) and (c)

(3) Only (a)

(4) Only (c)

98. Choose the **incorrect** statement w.r.t. energy flow in ecosystem.

(1) Sun is the only source of energy for all the ecosystems and food chains on earth including DFC

(2) Plants capture only 2 – 10% of the PAR

(3) Energy flow is unidirectional towards higher trophic levels

(4) Photosynthetic and chemosynthetic bacteria contribute to primary productivity of ecosystem

99. Which type of ecological pyramid would be obtained with the following data?
Primary producer: 4 kg m^{-2}
Primary consumer: 18 kg m^{-2}
Primary carnivore: 32 kg m^{-2}

(1) Inverted pyramid of energy

(2) Upright pyramid of number

(3) Inverted pyramid of number

(4) Inverted pyramid of biomass

100. Find the **wrong** one w.r.t. productivity.

(1) GPP is the available biomass for consumption to heterotrophs.

(2) Annual NPP of whole biosphere is approximately 170 billion tons of organic matter.

(3) Deserts and deep sea are the least productive ecosystems.

(4) GPP is rate of production of organic matter by producers per unit area and time.

101. Identify the **incorrectly** matched pair.

(1) The Amazon rain forest – Lungs of the planet

(2) Western Ghats of India – Very low level of species richness

(3) Fruit eating birds – Frugivorous

(4) Higher biodiversity – Higher productivity

102. Tropics are rich in biodiversity because

(1) It has undergone frequent glaciations in past

(2) It receives less solar radiations compared to poles

(3) Its cold temperature is favourable for speciation

(4) Its environment is less seasonal, relatively more constant and predictable

103. Select the **correct** match w.r.t. bird species found in different countries.

(1) Greenland- 56 species

(2) Colombia - 3000 species

(3) New York - 200 species

(4) India – <1000 species

104. Loss of biodiversity in a region may lead to
a. Increased variability in certain ecosystem processes.
b. Lowered resistance to environmental perturbations.
c. Decline in productivity.
The **correct** one(s) is/are

(1) Only a

(2) Only a and b

(3) Only b and c

(4) All a, b and c

105. Species which are more susceptible to extinction have all the following population characteristics, **except**

(1) Fixed habitat and migratory routes

(2) Large body size

(3) Small population size and low reproductive rate

(4) First trophic level in food chain with high reproductive rate

106. Which of the following statements is/are **correct**?
a. As we move on Earth from low to high latitude, the biodiversity increases.
b. According to Paul Ehrlich, loss of the key species from an ecosystem may cause serious threat to ecosystem.
c. India possesses 8.1% species diversity of the world.
Select the **correct** option.

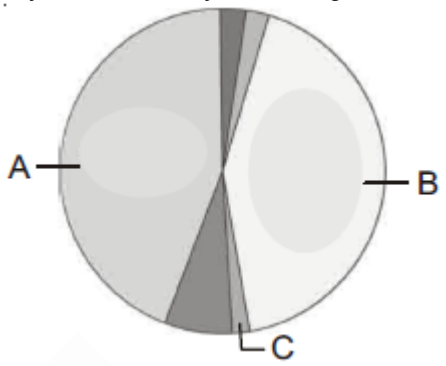
(1) b and c only

(2) b only

(3) All a, b, and c

(4) a and c only

107. Identify A, B and C in the given figure showing global biodiversity of proportionate number of species related to major taxa of eukaryotes having cell walls.



	A	B	C
(1)	Fungi	Angiosperms	Lichens
(2)	Angiosperms	Lichens	Fungi
(3)	Algae	Lichens	Mosses
(4)	Mosses	Ferns	Algae

(1) (1)

(2) (2)

(3) (3)

(4) (4)

108. In a food chain, which level typically has the least amount of energy?

(1) Primary producers

(2) Herbivores

(3) Primary consumer

(4) Top consumer

109. The term, 'biodiversity' was popularised by

(1) Robert May

(2) Edward Wilson

(3) Paul Ehrlich

(4) Alexander von Humboldt

110. Identify the **correct** example of *in situ* conservation of biodiversity.

(1) Botanical garden

(2) National park

(3) Seed bank

(4) Wildlife safari park

111. Identify the **incorrect** one w.r.t. characteristic of an anthropogenic ecosystem.

(1) Has little diversity

(2) Shows high productivity

(3) Exhibits a complex food chain

(4) Performs little cycling of nutrients

112. Select the **incorrectly** matched pair from the following.

(1) Secondary consumers – Feed on herbivores

(2) Producers – Convert light energy into chemical energy

(3) Secondary carnivores – Feed on primary consumers

(4) Top carnivores – May be primary, secondary or tertiary carnivores

113. Identify the **correct** example of the first order consumer.

(1) Frog

(2) Tadpole

(3) Panther

(4) Snake

114. Which factor typically limits primary productivity in deep sea ecosystem?

(1) Light availability

(2) Temperature

(3) Lack of minerals

(4) Dissolved organic nutrients

115. Among the following, which can be considered as the most productive ecosystem?

(1) Coral reef

(2) Tundra

(3) Lake

(4) Desert

116. Key species refers to a species that

(1) Is abundant in an ecosystem.

(2) Is invasive and outcompetes the native species.

(3) Contributes to the stability of an ecosystem.

(4) Is found in a particular habitat and nowhere else.

117. Biodiversity hotspots are the regions
(a) With low levels of species richness
(b) With high degree of endemism
(c) That require maximum protection
(d) Of accelerated habitat loss
How many of the above is/are **incorrect**?

(1) Three

(2) One

(3) Two

(4) Four

118. Read the given statements and select the **correct** option.
(A) Sparrow can be primary as well as secondary consumer.
(B) Occurrence of food web provides stability to the ecosystem.

(1) Only (A) is correct

(2) Only (B) is correct

(3) Both (A) and (B) are correct

(4) Both (A) and (B) are incorrect

119. In a forest, trees occupy top vertical strata, shrubs the second and herbs and grasses occupy the bottom layers. Technically it is called

(1) Stratification

(2) Biome distribution

(3) Scarification

(4) Speciation

120. Conventional taxonomic methods are not suitable for the identification of

(1) Insect species

(2) Microbial species

(3) Amphibian species

(4) Plant species

121. Read the following assertion (A) and reason (R) and choose the **correct** option.
Assertion (A): Conservation of biodiversity is essential for the maintenance of ecosystem services.
Reason (R): The services like pollination and water purification are directly linked to the variety of species within an ecosystem.

(1) Both (A) and (R) are true and (R) is the correct explanation of (A)

(2) Both (A) and (R) are true but (R) is not the correct explanation of (A)

(3) (A) is true but (R) is false

(4) (R) is true but (A) is false

122. Which of the following is **not** an example of an invasive alien species in India?

(1) *Lantana*

(2) *Eicchornia*

(3) *Clarias gariepinus*

(4) *Rauwolfia vomitoria*

123. How many native species of birds became extinct as a result of colonisation of tropical Pacific Islands by humans?

(1) More than 2000

(2) Less than 500

(3) More than 14,000

(4) Less than 700

124. Read the following assertion (A) and reason (R) statements and select the **correct** option.
Assertion (A) : Pyramid of energy is always upright and can never be inverted.
Reason (A) : When energy flows from a particular trophic level to the next trophic level, some energy is always lost as heat at each step.

(1) Both (A) and (R) are true and (R) is the correct explanation of (A)

(2) Both (A) and (R) are true but (R) is not the correct explanation of (A)

(3) (A) is true but (R) is false

(4) Both (A) and (R) are false

125. In the given ecosystem, if the NPP of grass is 400 (kcal m^{-2}) yr^{-1}, then what would be the secondary productivity at third trophic level in the given food chain?
Grass → Grasshopper → Frog → Snake

(1) 4000 (kcal m^{-2}) yr^{-1}

(2) 40 (kcal m^{-2}) yr^{-1}

(3) 4 (kcal m^{-2}) yr^{-1}

(4) 0.4 (kcal m^{-2}) yr^{-1}

126. Match the following columns and select the **correct** option.

	Column-I		**Column-II**
a.	Sacred groves	(i)	Protection of animals (fauna) from all types of exploitations
b.	Sanctuaries	(ii)	Threatened reservoir of plants and animals life on earth
c.	Hotspots	(iii)	Species confined to a particular area
d.	Endemism	(iv)	Islands of pristine forests

(1) a(iv), b(i), c(ii), d(iii)

(2) a(i), b(ii), c(iii), d(iv)

(3) a(iv), b(ii), c(iii), d(i)

(4) a(iv), b(i), c(iii), d(ii)

127. According to David Tilman

(1) Increased diversity contributed to higher productivity.

(2) Plots with more species showed more year to year variation in total biomass.

(3) A stable community shows much variation in productivity year-to-year.

(4) A stable community must not be resistant or resilient to occasional disturbances.

128. For which of the following food chains, pyramid of biomass is inverted?

(1) Grass → Grasshopper → Frog

(2) Grass → Deer → Fox

(3) Phytoplanktons → Zooplanktons → Fish

(4) Tree → Birds → Parasite

129. Read the given statements and choose the **correct** option.
Statement A: Steller's sea cow became extinct due to over exploitation.
Statement B: Carrot grass is a weed that exterminate many herbs and shrubs of the area where it grows.

(1) Only statement A is correct

(2) Only statement B is correct

(3) Both statements A and B are correct

(4) Both statements A and B are incorrect

130. Maximum biodiversity is of

(1) Insects in vertebrates, fishes in invertebrates, and lichens in plants

(2) Molluscs in invertebrates, amphibians in vertebrates and mosses in plants

(3) Insects in invertebrates, fishes in vertebrates and angiosperms in plants

(4) Crustaceans in vertebrates, birds in invertebrates and algae in plants

131. The process by which water-soluble inorganic nutrients go down into the soil horizon and get precipitated as unavailable salts is known as

(1) Catabolism

(2) Mineralisation

(3) Humification

(4) Leaching

132. The Earth Summit (1992) was held in

(1) Rio de Janeiro

(2) Johannesburg

(3) Australia

(4) Mauritius

133. India has $\underline{A}$ biosphere reserves, $\underline{B}$ national parks and $\underline{C}$ wildlife sanctuaries.
Select the **correct** option for A, B and C.

(1) A-14, B-90, C-448

(2) A-90, B-14, C-448

(3) A-24, B-89, C-468

(4) A-89, B-24, C-428

134. When a host fish species become extinct, its unique assemblage of parasites also meets the same fate. This exemplifies

(1) Alien species invasion

(2) Over-exploitation

(3) Endemism

(4) Co- extinction

135. Sacred groves of Khasi and Jaintia Hills are situated in

(1) Meghalaya

(2) Maharashtra

(3) Madhya Pradesh

(4) Karnataka

ZOOLOGY

136. Alimentary canal in roundworms is

(1) Incomplete

(2) Complete without pharynx

(3) Complete with muscular pharynx

(4) Absent

137. Choose the **incorrect** statement w.r.t. hemichordates.

(1) The body is cylindrical and is composed of anterior proboscis, a collar and a long trunk.

(2) Circulatory system is of closed type.

(3) Respiration takes place through gills.

(4) Fertilisation is external and development is indirect.

138. The lowest taxonomic group to which *Trygon*, *Salamandra* and *Felis* belongs to, is

(1) Tetrapoda

(2) Gnathostomata

(3) Vertebrata

(4) Chordata

139. Consider the given features
(a) Presence of epidermal scales or scutes
(b) Number of chambers in heart is similar to that of frog's heart
(c) Mode of fertilisation is similar to that of *Psittacula*
All of the above given features are true for which of the following sets of animals?

(1) *Struthio*, *Rana*

(2) *Testudo*, *Hemidactylus*

(3) *Chameleon*, *Crocodilus*

(4) *Salamandra*, *Ichthyophis*

140. A similarity between *Sycon*, *Taenia* and *Hirudinaria* is that all of them

(1) Are monoecious

(2) Show indirect development

(3) Show external fertilisation

(4) Exhibit extracellular digestion of food

141. The organisms exhibiting radial symmetry are
(i) *Spongilla*
(ii) *Pennatula*
(iii) *Adamsia*
(iv) *Taenia*
Choose the **correct** option.

(1) (i) and (ii)

(2) (ii) and (iii)

(3) (i), (ii) and (iii)

(4) (i) and (iv)

142. Consider the following features.
a. Commonly known as sea walnuts or comb jellies
b. The body bears eight external rows of ciliated comb plates
c. Digestion is only extracellular
How many features mentioned above is/are associated with ctenophores?
Choose the correct option

(1) One

(2) Two

(3) Three

(4) Zero

143. A mesodermal endoskeleton made of calcareous plates or ossicles is seen in

(1) *Ophiura*

(2) *Euspongia*

(3) *Octopus*

(4) *Meandrina*

144. Common feature among *Pavo*, *Vipera* and *Rattus* is

(1) Indirect development

(2) External fertilisation

(3) Internal fertilisation

(4) Oviparity

145. The type of heart in which oxygenated and deoxygenated blood is completely separated, is present in all of the following, **except**

(1) *Crocodilus*

(2) *Psittacula*

(3) *Delphinus*

(4) *Vipera*

146. Select the **correct** statement w.r.t. *Betta*, *Myxine* and *Chelone.*

(1) They all possess a dorsal heart.

(2) They all exhibit internal fertilisation and direct development.

(3) They all possess paired fins/limbs.

(4) They all lack the capacity to regulate their body temperature.

147. Which among the following statements is **not** true about *Neophron*?

(1) Their forelimbs are modified into wings

(2) Their hindlimbs generally have scales and are modified for walking

(3) They are oviparous and exhibit external fertilization

(4) Their endoskeleton is fully ossified

148. Consider the following features
(a) Unisexual
(b) True metamerism
(c) Oviparity
Select the **correct** set of animals which possess all the above mentioned features.

(1) *Nereis, Adamsia, Bombyx*

(2) *Pheretima, Clarias, Panthera*

(3) *Neophron, Apis, Chelone*

(4) *Locusta*, *Planaria, Hyla*

149. Consider the following characteristics
Tympanum, cloaca, eyelids, trunk, homeotherm, two-chambered heart, external fertilization, viviparous, scales.
How many of the above mentioned characteristics/structures are found in most amphibians?

(1) 4

(2) 5

(3) 6

(4) 7

150. Most unique mammalian feature without any exception is

(1) Presence of mammary glands

(2) Viviparity

(3) Oviparity

(4) Flying capability

151. Complete the analogy by selecting the **correct** option.
Sponges : Choanocytes :: _____ : Cnidoblasts

(1) Roundworms

(2) Flatworms

(3) Coelenterates

(4) Sea walnuts

152. Select the **correct** set of organisms which show indirect development and are found only in marine habitat.

(1) *Ascaris* and *Ctenoplana*

(2) *Planaria* and *Pleurobrachia*

(3) *Saccoglossus* and *Ophiura*

(4) *Fasciola* and *Dentalium*

153. Which of the following phyla of the animal kingdom includes organisms where bilateral symmetry appeared for the first time?

(1) Aschelminthes

(2) Arthropoda

(3) Annelida

(4) Platyhelminthes

154. In sponges, the mode of reproduction is

(1) Only asexual by fragmentation

(2) Only asexual by binary fission

(3) Only sexual by formation of gametes

(4) Both sexual and asexual

155. *Pennatula* and *Pleurobrachia* are similar as they
(a) Exhibit similar body symmetry
(b) Possess similar level of body organisation
(c) Are diploblastic
(d) Show similar mode of digestion
Select the correct option.

(1) Only (a) and (c)

(2) Only (a)

(3) Only (b) and (d)

(4) (a), (b), (c), (d)

156. Select the **incorrect** option w.r.t. water vascular system and water canal system.

(1) Former is seen in brittle star

(2) Both the systems assist in locomotion

(3) Latter is seen in bath sponge

(4) Both the systems assist in food gathering and respiratory exchange

157. **Assertion (A)**: In arthropods, circulation is of open type and blood is pumped by heart.
Reason (R): In arthropods, blood is circulated through a series of vessels and capillaries of varying diameters and pumped into haemocoel *via* heart.
In the light of above statements, choose the **correct** option.

(1) Both (A) and (R) are true and (R) is the correct explanation of (A)

(2) Both (A) and (R) are true but (R) is not the correct explanation of (A)

(3) (A) is true but (R) is false

(4) (A) is false but (R) is true

158. Triploblastic acoelomate animals exhibiting organ-level of body organisation among the following are

(1) *Planaria* and *Taenia*

(2) *Fasciola* and *Ctenoplana*

(3) *Ancylostoma* and *Petromyzon*

(4) *Pavo* and *Planaria*

159. _____ possesses a cartilaginous vertebral column and cranium.
Select the **correct** option to fill in the blank.

(1) Angel fish

(2) Flying fish

(3) Hag fish

(4) Devil fish

160. Read the following features:
(a) Most primitive of all vertebrates
(b) Notochord persists throughout the life
(c) Ectoparasites on some fishes
(d) Sucking and circular mouth with jaws
How many of the above given features hold(s) true for Lamprey?

(1) Four

(2) Three

(3) Two

(4) One

161. All of the following organisms possess scales, **except**

(1) *Petromyzon*

(2) *Calotes*

(3) *Pristis*

(4) *Corvus*

162. Choose the **incorrect** statement.

(1) In reptiles, external ear openings are absent.

(2) In amphibians, the skin is smooth having mucus glands.

(3) In cartilaginous fishes, mouth is located terminally.

(4) In adult mammals, heterodont dentition is present.

163. Select the **correct** match.

(1) *Delphinus* – Performs branchial respiration

(2) *Scoliodon* – Swims constantly

(3) *Crocodilus* – Contains only one ventricle in its heart

(4) *Ichthyophis* – Tailed amphibian with limbs

164. Select the characteristic which is **not** common between *Psittacula* and *Pteropus.*

(1) Homeothermy

(2) Ossified endoskeleton

(3) Viviparity

(4) Pulmonary respiration

165. Amongst the organisms mentioned below, choose the one that resides in freshwater.

(1) Sea horse

(2) Magur

(3) Sea cucumber

(4) Sting ray

166. Select the correct set of organisms that are viviparous and show internal fertilisation with direct development.

(1) *Hyla* and *Hemidactylus*

(2) *Locusta* and *Labeo*

(3) *Columba* and *Camelus*

(4) *Canis* and *Felis*

167. All of the following animals exhibit tissue level of body organisation, **except**

(1) Sea-fan

(2) Brain coral

(3) Fresh water sponge

(4) Sea anemone

168. How many animals mentioned in the box below are considered as economically beneficial insects?

Apis, Bombyx, Anopheles, Aedes, Culex, Laccifer

(1) 3

(2) 4

(3) 5

(4) 2

169. Select the **odd** one from the following w.r.t phyla

(1) Sea lily

(2) Sea cucumber

(3) Sea urchin

(4) Sea hare

170. Members of which of the following phyla do **not** show true metamerism?

(1) Annelida

(2) Mollusca

(3) Arthropoda

(4) Chordata

171. A new animal was discovered and brought to the lab for scientific observation and study. The following characteristic features were documented about it.
(i) Had two pairs of limbs.
(ii) A lot of differences were observed between its larvae and adult form.
(iii) The tail was absent in the adult, while present in the larvae.
(iv) Adult could live both on land and in water.
The organism most likely belongs to the

(1) Phylum Arthropoda

(2) Super class Pisces

(3) Sub phylum Protochordata

(4) Class Amphibia

172. Read the given statements (a to e) and select the option which **correctly** states them as True (T) or False (F).
a. Respiration in flying fox is by lungs
b. Fertilisation is internal in *Ornithorhynchus*
c. Heart is four-chambered in *Chameleon*
d. *Salamandra* is an aquatic reptile
e. Air sacs in *Psittacula* supplement respiration

(1) a-T, b-F, c-F, d-T, e-T

(2) a-T, b-F, c-T, d-T, e-T

(3) a-T, b-T, c-F, d-F, e-T

(4) a-T, b-T, c-T, d-F, e-F

173. The notochord of chordates lies between

(1) Nerve cord and vertebral column

(2) Nerve cord and gut

(3) Vertebral column and gut

(4) Muscles and bony skeleton

174. Select the **correct** statement.

(1) All flatworms are endoparasites.

(2) All chordates have a closed circulatory system.

(3) All molluscs have a calcareous exoskeleton.

(4) All members of the kingdom Animalia are multicellular.

175. Select the **correct** match w.r.t. organism, its phylum and characteristic feature.

	Organism	**Phylum**	**Characteristic feature**
(1)	Liver fluke	Platyhelminthes	Have both hooks and suckers
(2)	Scorpion	Annelida	Body is divided into head, thorax and abdomen
(3)	Cuttle fish	Mollusca	Monoecious and oviparous
(4)	Brain coral	Cnidaria	Gastrovascular cavity with a single opening

(1) (1)

(2) (2)

(3) (3)

(4) (4)

176. Match column I with column II w.r.t organisms and the type of respiratory structure/system present in them.

	Column I		Column II
a.		(i)	Feather-like gills
b.		(ii)	Tracheal system
c.		(iii)	Book lungs
d.		(iv)	Gills

Select the **correct** option.

(1) a(i), b(ii), c(iv), d(iii)

(2) a(iii), b(iv), c(ii), d(i)

(3) a(iii), b(ii), c(iv), d(i)

(4) a(i), b(iv), c(ii), d(iii)

177. Sea anemone represents

(1) Umbrella-shaped polyp form

(2) Medusa form which is formed *via* asexual reproduction

(3) Cylindrical polyp form

(4) Medusa form which is formed *via* sexual reproduction

178. Select the **incorrect** statement.

(1) All bilaterally symmetrical animals are triploblastic.

(2) Porifers are the most primitive unicellular animals.

(3) Housefly belongs to the Muscidae family.

(4) A silkworm undergoes metamorphosis to form an adult.

179. **Assertion (A)**: The organisms belonging to the class Aves have a streamlined body and hollow long bones with air cavities.
Reason (R): All the birds are feathered bipeds that have functional wings and show anatomical and morphological flight adaptations.
In the light of above statements, choose the **correct** option.

(1) Both (A) and (R) are true and (R) is the correct explanation of (A)

(2) Both (A) and (R) are true but (R) is not the correct explanation of (A)

(3) (A) is true, (R) is false

(4) (A) is false, (R) is true

180. Read the following statements:
Statement A : Members of the class Chondrichthyes have a bony endoskeleton and possess a heterocercal caudal fin.
Statement B : All chordates possess a mouth with an upper and a lower jaw, without any exception.
Choose the **correct** option.

(1) Both statements A and B are incorrect

(2) Both statements A and B are correct

(3) Only statement A is incorrect

(4) Only statement B is incorrect