

Padasalai's Telegram Groups!

(தலைப்பிற்கு கீழே உள்ள லிங்கை கிளிக் செய்து குழுவில் இணையவும்!)

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- Lesson Plan - Group
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Common Quarterly examination - Sep-19

Std: 10 Sub: Science

Physical Science
Answer Key

PART-I	Solution:
1. (a) Swimming	4. gram molecular mass of O_2
2. (c) Zero	$O_2 \Rightarrow 2 \times 16 = 32g$
3. (c) ohm	2. Substance is heat or cooled but mass always constant so,
4. (c) 32 g	Ans: Zero
5. (c) $Fe_2O_3 \cdot xH_2O$	
6. (b) blue Vitriol	6. $CuSO_4 \cdot 5H_2O$

Part - II

13. At Equilibrium the algebraic Sum of the moments of all the individual forces about any point is Equal to Zero. (2)

14	Convex lens	Concave lens
1	Thicker in the middle than at edge	Thinner in the middle than at edge ($\frac{1}{2}$)
2	Converging lens	Diverging lens ($\frac{1}{2}$)
3	Correct Hypermetero-pia	Correct myopia ($\frac{1}{2}$)
4	produces mostly real images	Produces Virtual images. ($\frac{1}{2}$)

15. The number of atoms present in the molecule is called atomicity (2)

16. (i) False
Moseley's periodic table is based on atomic number (1)

(ii) False
An alloy is a homogenous mixture of metals (1)

17. 1. Blue Vitriol - $CuSO_4 \cdot 5H_2O$
2. Gypsum - $CaSO_4 \cdot 2H_2O$
3. Delidquescence - NaOH
4. Hygroscopic - CaO ($4 \times \frac{1}{2} = 2$)

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22. $V = IR$ (or) $R = \frac{V}{I}$ (1)

$V = 30V \quad I = 2A$

$R = \frac{30}{2} = 15\ \Omega \quad \left(\frac{1}{2} + \frac{1}{2}\right) = 1$

Part – III

23. every objects in the Universe attracts every other objects. The Force is directly proportional to the product of thier masses and inversely proportional to the Square of the distance. (2)

$F \propto m_1 \times m_2$

$F \propto \frac{1}{r^2}$ $\left.\right\}$ $\left(\frac{1}{2}\right)$

$F \propto \frac{m_1 m_2}{r^2} \quad \left(\frac{1}{2}\right)$

$F = G \frac{m_1 m_2}{r^2} \quad \left(\frac{1}{2}\right)$

$G = 6.67 \times 10^{-11}\ N\ m^2\ kg^{-2} \Rightarrow \left(\frac{1}{2}\right)$

24. (a) (i) A form of energy

(ii) travels along a straight line

(iii) The Speed of light in air $C = 3 \times 10^8\ ms^{-1}$

(iv) does not need medium for its propagation

(v) Different Coloured light has different wavelength and frequency.

$\left(5 \times \frac{1}{2} = 2\frac{1}{2}\right)$

24 (b)

(i) Can be Viewed even with the low intensity of light (1)

(ii) Camera Can be attached for taking photo for the Celestial objects $\left(\frac{1}{2}\right)$

25. Boyle's law $PV = Constant$

charle's law $\frac{V}{T} = Constant$

Avagadro law $\frac{V}{n} = Constant$

$\frac{PV}{nT} = Constant$

$PV = Constant\ nT$

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$\therefore n = \mu N_A$

$\frac{PV}{\mu N_A T}$ = Constant

$K_B = 1.38 \times 10^{-23} J K^{-1}$

$\frac{PV}{\mu N_A T} = K_B$ ⟶

$PV = K_B \mu N_A T \quad (\because K_B \mu N_A = R)$

$PV = RT$ $\quad (R = 8.31 \text{ mol}^{-1} K^{-1})$

26. The process of reducing the roasted metallic oxide from the metal in its molten condition. In this process impurities are removed as slag by the addition of flux.

27.

$$CuSO_4 \cdot 5H_2O \underset{}{\overset{\Delta}{\rightleftharpoons}} CuSO_4 + 5H_2O$$

(A) (B) (2)

A = $CuSO_4 \cdot 5H_2O$ (1) B = $CuSO_4$ (1)

32. (a) Solubility of Solute = $\frac{\text{Mass of Solute}}{\text{Mass of Solvent}} \times 100$

$= \frac{1.5}{15} \times 100$

$= 10 g$ (2)

32(b) Solutions which are made of one solute and one solvent are called Binary Solution. (2)

Part - IV

33. (a) $P = 100 W \quad V = 200 V$

$P = VI$

$I = \frac{P}{V} \Rightarrow I = \frac{100}{200} = 0.5 A$

$P = I^2 R$

$R = \frac{P}{I^2} \Rightarrow R = \frac{100}{0.2/5} = 400 \Omega$

33(b)

(i) Boyle's law
(ii) Charle's law
(iii) Avogadro's law.

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34(a) (i) An atom is no longer indivisible

(ii) Atoms of the same element may have different atomic mass (eg: $_{17}Cl^{35}$, $_{17}Cl^{37}$)

(iii) Atoms of different elements may have same atomic masses. eg: $_{18}Ar^{40}$, $_{20}Ca^{40}$

(iv) Atom is the smallest particle that takes part in chemical reaction.

(v) The mass of an atom can be converted into energy ($E = mc^2$)

(b)

$$\text{no. of. moles} = \frac{\text{give mass}}{\text{atomic mass}}$$

$$= \frac{27}{27}$$

$$= 1 \text{ moles.}$$

prepared by

P. KATHIRAVAN M.Sc. B.Ed., (physics)

miltonmatric higher Secondary School melur - 625106

Madurai - Dt

Tamil nadu (St)

9965484608

padasalai

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