PRE-BOARD-3 2025-26
SCIENCE (086)
MARKING SCHEME

Class: X SET -1 Time: 3 hours
Date: 15.01.25 Max Marks: 80

	Section-A (Biology)	**Marks**
1	B. Mushroom	1
2	D. Aorta-takes blood from heart to body parts.	1
3	B. Dendrites	1
4	C. (ii) and (iii)	1
5	D.100% round and yellow	1
6	C.CFCs; Ozone	1
7	D.10000 joules	1
8	C. A is true R is false	1
9	C. A is true but R is false.	1
10	(a) $O_2 \rightarrow O+O$ (in presence of UV rays) $O_2+O \rightarrow O_3$ (Ozone) (b) As human beings occupy the top level in any food chain, the maximum concentration of harmful chemicals get accumulated in our bodies. This phenomenon is known as biological magnification.	1 + 1
11	A. Transpiration, Gaseous exchange, photosynthesis (Any two) OR B. Returns excess fluid from tissues to bloodstream. Transports fats from small intestine to blood.	1 + 1
12	Without a gallbladder, bile is not stored and concentrated, so when a fatty meal is eaten, there is less bile available for emulsification. Hence fat digestion is less efficient → must eat less oily food.	2
13	Phytohormones are plant hormones (chemical messengers) that regulate growth, development, responses. Auxins — cell elongation Gibberellins — stem elongation, seed germination Cytokinins — cell division, delay leaf senescence Abscisic acid (ABA) — induces dormancy, closes stomata under drought	1 + ½ X 4
14	A. "Inherited but not expressed" A recessive trait can be present in genotype but not seen in phenotype if a dominant allele is present. Example: in pea, wrinkled (recessive) allele may be inherited but masked in a plant that is heterozygous (Rr) and shows round seeds. B. Dihybrid cross with 3200 F_2 plants i)Tall + wrinkled = 3/16 of 3200 = 600 ii) Short + wrinkled = 1/16 of 3200 = 200	2 + 1

15 A. Bread is rich in starch. Digestion begins in mouth by salivary amylase secreted by salivary glands. 1

B. Butter (or fats) are digested in small intestine: bile emulsifies fats, then pancreatic lipase acts, producing fatty acids and glycerol which are absorbed. 1

C. Presence of starch is detected by iodine solution (turns blue/black). 1

D. The small intestine Part-O 1

16 A.i)Two types: self-pollination (same flower or plant) cross-pollination (different plant). 1

ii)After fertilization: ovule → seed, ovary → fruit, zygote → embryo 2

iii)Label "A" is pollen tube — function: e.g. carry male gamete to ovary for fertilisation. 2

OR

B. i)Vegetative propagation 1

Advantages: produces identical plants, faster flowering/fruiting. 2

ii)Budding in Hydra: a small outgrowth forms by cell division, develops tentacles and mouth, then detaches as a new individual. 2

iii)Spirogyra: when filament becomes long, fragmentation occurs (breaks into pieces, each grows), and conjugation may occur for sexual reproduction.

Section-B (Chemistry)

17 (d) $CaCO_3 \rightarrow CaO + CO_2$ 1

18 (d) Oxalic acid 1

19 (c) –OH 1

20 (a) Sodium 1

21 (b) Silver 1

22 (c) Hydrogen 1

23 (d) 4 1

24 A. Both A and R are true, and R is the correct explanation of A. 1

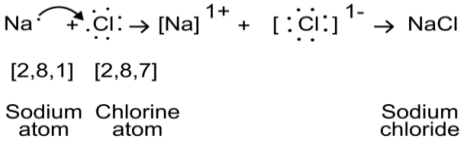
25 $Ca(OCl)_2$ $Ca(OH)_2 + Cl_2 \rightarrow Ca(OCl)_2$ 2

26 (i) $2AgCl \rightarrow Ag + Cl_2$ 1

(ii) $2H_2O \rightarrow H_2 + O_2$ 1

(iii) $2FeSO_4 \rightarrow Fe_2O_3 + SO_2 + SO_3$ 1

27 [A] 3



OR

[B](i) Heating of carbonate ore in limited supply of air $ZnCO_3 \rightarrow ZnO + CO_2$

(ii) Heating of sulphide ore in presence of air $ZnS + O_2 \rightarrow ZnO + SO_2$

(iii) bigger impurities present in ores are Gangue.

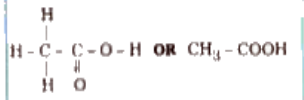
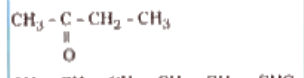
28 (a) number of water molecules present in formula unit. $CuSO_4.5H_2O$ 4

(b) $2NaHCO3 \rightarrow Na_2CO_3 + H_2O + CO_2$

OR

(b) (i) 5 (ii) 7

29 A. 5

Name	Structure
(i) Ethanoic acid	 OR CH_3-COOH
(ii) Bromo-pentane	$CH_3-CH_2-CH_2-CH_2-CH_2-Br$
(iii) Butanone	
(iv) Hexanal	$CH_3-CH_2-CH_2-CH_2-CH_2-CHO$

Propanol CH_3CH_2OH

OR

A. $CH_3COOH+CH_3CH_2OH \text{-----} \rightarrow CH_3COOCH_2CH_3+H_2O$

B. Identify A,B,C and D in the following reaction

(a) $CH_3CH_2OH \xrightarrow{KMnO4/OH-}$ A CH3COOH

(b) $CH_2=CH_2 \xrightarrow[H_2]{Ni}$ B C2H6

(c) $CH_3CH_2OH + Na \rightarrow C_2H_5ONa + H_2$

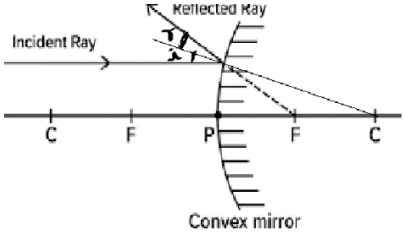
Section-C (Physics)

30 A. 1, 3 and 4 are correct 1

31 B. Distant objects clearly 1

32 C. A is true but R is false. 1

33 2



34 Power (P) = Voltage (V) × Current (I)
Since the voltage is the same in all circuits (12 V), we need to find the current in each circuit.

Circuit (i) Resistance (R) = 5 Ω
Current (I) = Voltage (V) / Resistance (R) = 12 V / 5 Ω = 2.4 A
Power (P) = V × I = 12 V × 2.4 A = 28.8 W

Circuit (ii) Resistance (R) = 5 Ω + 5 Ω = 10 Ω
Current (I) = Voltage (V) / Resistance (R) = 12 V / 10 Ω = 1.2 A
Power (P) = V × I = 12 V × 1.2 A = 14.4 W

Circuit (iii) Resistance (R) = 5 Ω (since the resistances are in parallel, the effective resistance is 5 Ω)
Current (I) = Voltage (V) / Resistance (R) = 12 V / 5 Ω = 2.4 A
Power (P) = V × I = 12 V × 2.4 A = 28.8 W

Comparing the power values:
- Minimum power: Circuit (ii) with 14.4 W
- Maximum power: Circuits (i) and (iii) with 28.8 W

The correct answer is: 1

(I) Minimum: Circuit (ii) 1

(II) Maximum: Circuits (i) and (iii)

(b)

Finding current

We know that,

$$\text{Power} = \text{Voltage} \times \text{Current}$$

$$P = V\,I$$

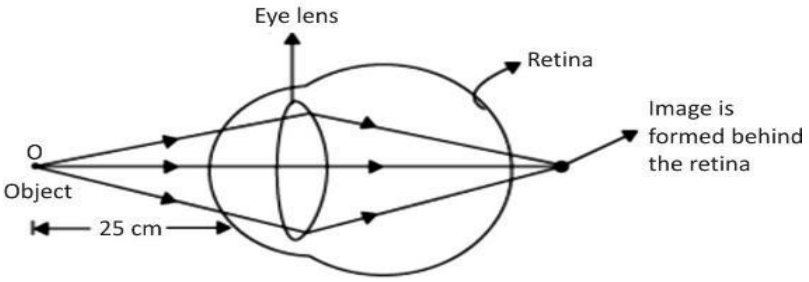
$$\therefore I = \frac{P}{V}$$

2

Lamp 1	Lamp 2
$I_1 = \frac{P_1}{V}$	$I_2 = \frac{P_2}{V}$
$I_1 = \frac{100}{220}$	$I_2 = \frac{60}{220}$
$I_1 = \frac{10}{22}$	$I_2 = \frac{6}{22}$
$I_1 = \frac{5}{11}$ A	$I_2 = \frac{3}{11}$ A

35 (a) Hypermetropia 1

(b)



2

36 Length **(L)**: Resistance is directly proportional to the length of the conductor. This means a longer conductor will have higher resistance because there are more atoms for electrons to collide with, impeding their flow. ½

Cross-sectional Area **(A)**: Resistance is inversely proportional to the cross-sectional area of the conductor. A thicker (larger area) conductor offers less resistance to current flow, as there is more space for electrons to move through. ½

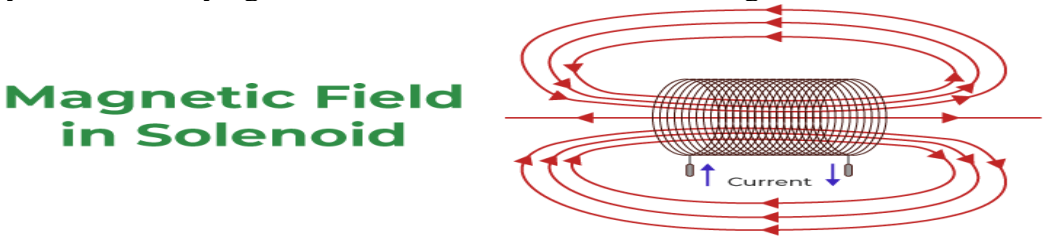
1

P =R X A/L

= 60 X 1 X10^{-6}/3 1

=2 X 10^{-5} Ωm

37 A solenoid is a long coil of insulated wire wound in the shape of a cylinder. When an electric current is passed through it, the coil generates a magnetic field, effectively turning the device into an electromagnet. The magnetic field produced by a current-carrying solenoid is similar to that of a bar magnet. 1



1

Ways to increase the strength of the magnetic field

(1) Increase the current: The magnetic field strength is directly proportional to the amount of electric current flowing through the solenoid. Therefore, increasing the current will result in a stronger magnetic field. 1

(2) Increase the number of turns: The magnetic field is also directly proportional to the number of wire turns in the coil. By increasing the number of turns per unit length, the magnetic field strength is enhanced.

(3) Use a ferromagnetic core: Inserting a soft iron core inside the solenoid can increase the magnetic field strength significantly. The iron core becomes magnetized itself, greatly multiplying the overall magnetic field.

38 (i) M2, because it is a diverging mirror and will be able to view larger view. 1

(ii) $m= h_I/h_o= -v/u$ 1

(iii) $m= -v/u$ 1

$3= -v/-10$ 1

$v=30cm$

Or

(iii) 2

$m= -v/u=-30/-60=0.5$

39 (a) (i) . Current becomes one-third of its initial value. 1

.. Ohm's Law

The potential difference across the ends of a conductor is directly proportional to the current flowing through it, provided its temperature remains the same. 1

(ii) Total Voltage = V = 4 x 1·5 V = 6 V Total resistance, $R(s) = R_1+ R_2 + R_3 = 5\ \Omega + 10\ \Omega + 15\ \Omega = 30\ \Omega$ 1

(a) Current, $I = V/R = 6\ V/30\ \Omega = 0.2\ A$ 1

(b) $V = IR = 0.2\ A \times 10\ \Omega = 2\ V$ 1

OR

(b) (i) When 1 joule of work is done to move a charge of 1 coulomb from one point to the other. 2

(ii) $d = 0.2\ mm = 2 \times 10^{-4}\ m$; $R = 14\ \Omega$ $\rho = 1.6 \times 10^{-8}\ \Omega\ m$; $A = \pi d^2/4$

$R = \rho\ l/A = 4\ \rho\ l/\pi d^2$ 1

or $l = \pi\ d^2\ R/4\ \rho$

$l = 22/7 \times (2 \times 10^{-4})^2 4 \times 1.6 \times 10^{-8} \times 14$ 1

$= 27.5\ m$

When the diameter is doubled, d' = 2d, A' = 4A. R'/R = A/A' or R' = RA/A' R' = 3.5 Ω Change (14.0 - 3.5) = 10.5 Ω 1