



B.K. BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
A CBSE DAY-CUM-BOYS' RESIDENTIAL SCHOOL



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

Class: X

Date: 15.01.26

Time: 3 hours

Max Marks: 80

Section-A (Biology)

Marks

- | | | |
|----|--|---|
| 1 | D. Cuscuta | 1 |
| 2 | B. Septum- separates right and left chambers of the heart. | 1 |
| 3 | C. releases some chemicals in the nerve ending of the neuron. | 1 |
| 4 | D. (i) and (iv) | 1 |
| 5 | A. 100% tall and yellow | 1 |
| 6 | D. This will reduce the release of CFCs that react with ozone molecules. | 1 |
| 7 | C. 10000 joules | 1 |
| 8 | A. Both A and R are true, and R is the correct explanation of A. | 1 |
| 9 | C. A is true but R is false. | 1 |
| 10 | Effect of a decrease in the snake population
The frog population will increase
The grasshopper population will decrease
The grass population may decline
The ecosystem becomes imbalanced | 2 |
| 11 | A.i) Excretory products in plants: Resins, Gums.
ii) First step of anaerobic respiration: Glycolysis(Pyruvate formation)
Organism: Yeast
OR
B. Function of lymph: Transports absorbed fats from the intestine.
Provides immunity, returns excess tissue fluid to the blood. | 2 |
| 12 | Finger-like projections (Villi)
Small intestine: Increase surface area for absorption of digested food.
Large intestine: No villi; absorbs water and salts. | 2 |
| 13 | Hormone for bending of shoot: Auxin
Auxin accumulates on shaded side causing faster growth → bending
Growth inhibitor hormone: Absciscic acid (ABA) | 3 |
| 14 | A. Inherited but not expressed. Example:

Recessive trait like wrinkled seeds carried but not expressed in heterozygous condition.

B. Dihybrid cross (800 plants, ratio 9:3:3:1)
i) Round seeds with white flowers = $\frac{3}{16} \times 800 = 150$
ii) Wrinkled seeds with white flowers = $\frac{1}{16} \times 800 = 50$ | 3 |
| 15 | A. Digestion completed: Small intestine | 4 |

By the action of bile, pancreatic juice, and intestinal enzymes

OR

B. Pepsin vs Trypsin

Pepsin: Acts in the stomach, digests proteins in an acidic medium.

Trypsin: Acts in the small intestine, digests proteins in an alkaline medium.

C. Starch test: Add iodine solution → blue-black colour indicates starch

D. Emulsification of fats

Secretion: Bile

Released by: Liver (stored in gall bladder)

16 A. i) Unisexual flower: Either male or female (Papaya) 5

Bisexual flower: Both reproductive parts (Hibiscus)

ii) B: Anther – produces pollen grains

iii) A: Stigma – receives pollen

C: Ovary – forms seeds after fertilization

OR

B i) Fragmentation: body breaks into pieces → new individuals

Regeneration: regrowth of lost body parts

ii) Regeneration does not involve gametes or fertilization

iii) Complex organisms have specialized cells that cannot divide freely

iv) Advantages: Rapid reproduction, Survival in stable environments

Section-B (Chemistry)

17 a 1

18 b 1

19 a 1

20 a 1

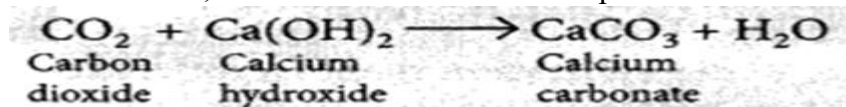
21 c 1

22 d 1

23 d 1

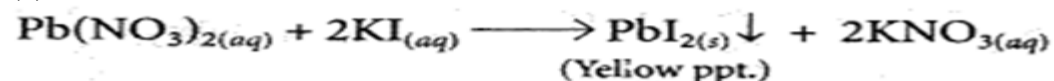
24 a 1

25 Oxides of non-metals react with bases to form salt and water. For example, the reaction between carbon dioxide and calcium hydroxide. Calcium hydroxide, which is a base, reacts with carbon dioxide to produce salt and water. 2



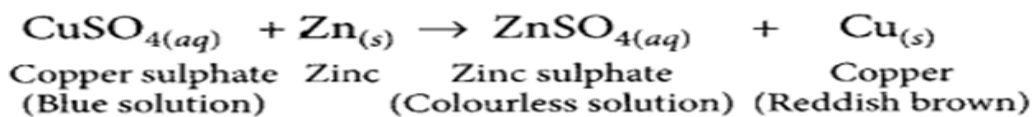
26 (a) When lead nitrate is added to potassium iodide then yellow precipitate of lead iodide is formed along with potassium nitrate. 3

(b) Balanced chemical reaction is as follows :



(c) This type of reaction is called precipitation reaction in which one of the products formed is an insoluble substance or this is also called double displacement reaction

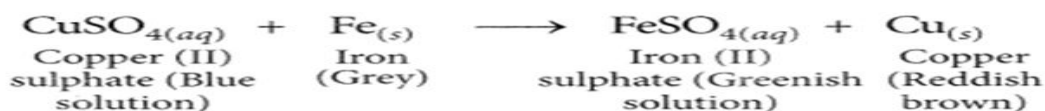
27 .(i) If a strip of zinc metal is put in copper sulphate solution, then the blue colour of copper sulphate fades gradually due to the formation of colourless zinc sulphate solution and reddish-brown copper metal is deposited on zinc strip. 3



(ii) $\text{Cu} + \text{FeSO}_4$ No Reaction

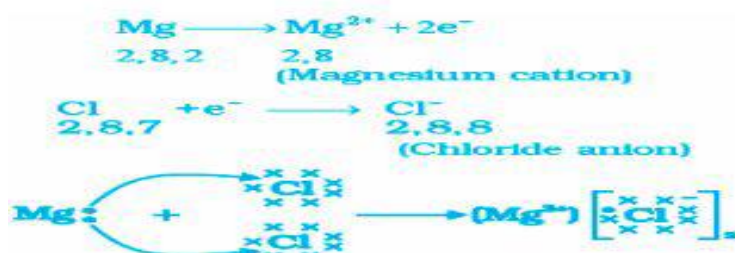
Cu is less reactive than Fe, thus, it cannot displace Fe from FeSO_4 solution.

(iii) When an iron nail is dipped in copper sulphate solution, then the blue colour of copper sulphate fades gradually and a reddish brown coating is formed on the iron nail.



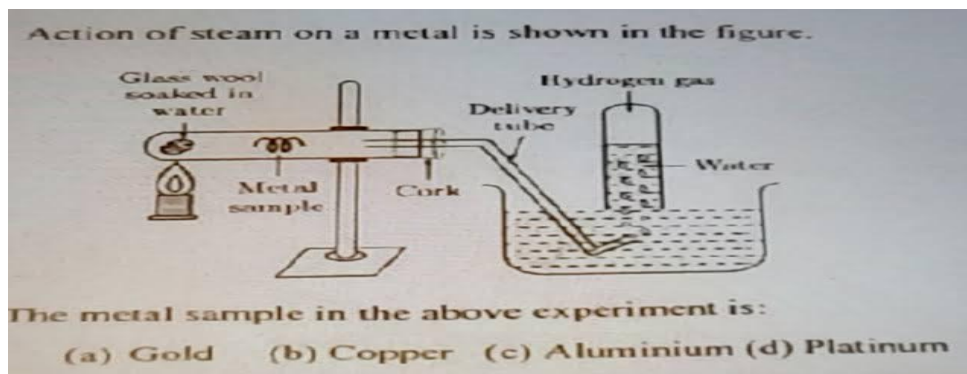
8 i

4



ii Ionic compounds are solids because their positive and negative ions are held together by very strong electrostatic forces of attraction, forming a rigid, ordered 3D crystal lattice structure where ions are locked in fixed positions, requiring a large amount of energy to overcome these strong bonds

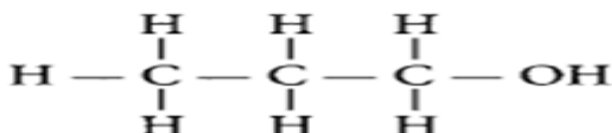
iii.



28 (i) b (ii) c (iii) b (iv) a or (iv) c

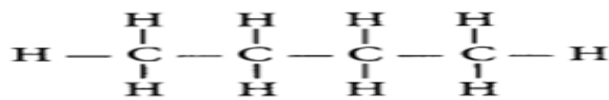
5

29.A (I) (i) C_3H_6 (ii) C_5H_8
(II) Ethanol and Ethanal
(III) C_4H_{10} ; C_6H_{14}
(B) I



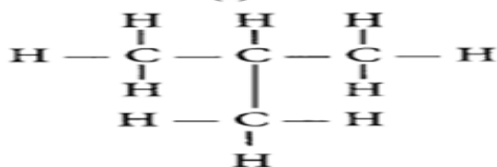
(ii) $\text{CH}_3\text{CH}_2\text{COCH}_3$

(iii)



n-Butane

(I)



2-Methylpropane

(II)

Section-C (Physics)

- | | | |
|----|---|---|
| 30 | d) Towards the observer | 1 |
| 31 | a) Violet and red | 1 |
| 32 | D. A is false but R is true. | 1 |
| 33 | The image distance is 16.67 cm, the image size is -3.33 cm, and the image nature is real and inverted. | 2 |
| 34 | $I = v/r = 22\text{V}/440\ \Omega = 0.5\text{A}$
$H = VIT = 220 \times 0.5 \times 30 = 3300\text{J}$ | 2 |

OR

$$P = 10\text{W because } R = \frac{V^2}{P}$$

$$R_1 = \frac{(220)^2}{10} = 4840\ \Omega$$

As per ohm's law

$$V = IR$$

Let the number of bulbs be 'x'

$$R = \frac{V}{I} = \frac{220}{5} = 44\ \Omega$$

Resistance of one electric bulb

$$R_1 = 4840\ \Omega$$

$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \dots \times \text{times}$$

$$\frac{1}{R} = \frac{1}{R_1} \times x$$

$$\frac{R_1}{R} = \frac{4840}{44} = 110$$

- | | | |
|----|---|---|
| 35 | (A) Concave Lens
(B) Virtual and erect
$f = -20\text{cm}$ | 3 |
| 36 | $R_s = R + R = 2R$
$R_p = R \times R / (2R) = R/2$ | 3 |

$$R_s/R_p = 4/1$$

- 37 (i) **Below the wire:** Magnetic field is from North to South (or towards North). 3
Above the wire: Magnetic field is from South to North (or towards South).
(ii) 1. Permanent Magnets: Materials like iron, nickel, and cobalt can be magnetized to create persistent magnetic fields, forming natural magnets that don't require external power.
2. Electric Currents:
Current in a Wire: Any time an electric current flows through a conductor (like a copper wire), it generates a magnetic field around that wire.
Coils and Solenoids: Wrapping wires into coils or solenoids concentrates the magnetic field, making it much stronger, forming an electromagnet when current flows.
- 38 (i) a real image forms from light rays *actually converging*, so it can be projected onto a screen and is usually inverted, while a virtual image forms where rays *appear to diverge from*, cannot be projected, and is typically upright 4
(ii) because its outward-curving surface causes light rays to diverge (spread out), reflecting a larger area of the surroundings and making objects appear smaller and farther away, fitting more into the reflection
(iii) because these mirrors produce a virtual, erect, and magnified image of small, internal structures, offering a clearer, enlarged view for detailed diagnosis, and they also help converge light from a lamp onto the specific area for bright illumination.
- OR
- Because a convex mirror has a wider field of view.
- 39 (A) $E_{ref} = 400 \times 10 / 1000 = 4 \text{ U/day}$ 5
 $E_{fan} = 80 \times 2 \times 6 / 1000 = 0.96 \text{ U/day}$
 $E_{tub} = 18 \times 6 \times 6 / 1000 = 0.648 \text{ U/day}$
 $E = 4 + 0.96 + 0.648 = 5.608 \text{ U/day}$
 $U_{total} = 5.608 \times 30 = 168.24 \text{ U}$
 $Bill = 168.24 \times 3 = \text{Rs}504.72$
- OR
- (B) (i) Graph 2m
 $R = V/I = 0.5/1.2 = 0.42 \text{ Ohm}$ 2m
(ii) Ohm's Law, stating that current is directly proportional to voltage and inversely proportional to resistance 1m