

N-4-A

Roll No.....

Total No. of Questions : 24]

[Total No. of Printed Pages : 8

XBAWZJ17

13604-A

SCIENCE

(Physics, Chemistry and Life Science)

Time : 3 Hours]

[Maximum Marks : 84

Section-A

(PHYSICS)

(Long Answer Type Questions)

1. What is Refraction ? Explain the process of refraction through a glass slab with suitable diagram.

Or

(a) Define magnification in case of lenses.

(b) A concave lens of focal length 15 cm forms an image at 10 cm.

from the lens. How far is the object placed from the lens? 6

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Turn Over

(Short Answer Type Questions)

4 each

2. A person is not able to see far off objects clearly. Name the defect the person is suffering from. How is it corrected? Draw the ray diagram.

Or

What is meant by scattering of light? Explain Tyndall effect.

3. Define electric power. An electric heater of resistance 8 ohms draws 1.5 amperes current from the mains in two hours. Calculate the amount of heat produced.

Or

Define electric current. A current of 0.5 A is drawn by a filament for 10 minutes. Calculate the amount of charge that flows through the circuit.

4. What is Solenoid? How does it behave like a bar magnet?

Or

State the rules to determine :

- (a) Magnetic field produced around a straight conductor carrying current.
- (b) Force produced by a current carrying wire placed in between magnetic field.

(Very Short Answer Type Questions)

2 each

5. What is Biogas ? How is it produced ?
6. Why convex mirrors are preferred as a side mirror in vehicles ?
7. Define Ohm's law.

(Multiple Choice Questions)

1 each

8. Choose the correct/most appropriate answer out of the following four alternatives given against each item and write it in your answer-book :

(i) The light can travel at fastest speed in :

- | | |
|------------------|--------------------|
| (a) kerosine oil | (b) turpentine oil |
| (c) water | (d) alcohol |

(ii) In order to get the same size of image as the object, when placed in front of a convex lens, the object may be placed :

- | | |
|-----------------|-----------------|
| (a) beyond $2f$ | (b) at $2f$ |
| (c) at F | (d) at infinity |

(iii) The sky appears blue during the day due to :

- | | |
|----------------------------|-------------------------|
| (a) refraction of light | (b) reflection of light |
| (c) atmospheric refraction | (d) scattering of light |

(iv) Slurry produced after producing gobar gas is :

- | | |
|---------------------|----------------------------------|
| (a) useless residue | (b) used as fuel after drying it |
| (c) used as manure | (d) used as fodder |

Section-B
(CHEMISTRY)

(Long Answer Type Questions)

9. How does ethanoic acid react with alcohols, bases, carbonates and bicarbonates ? Write equations for each reactions.

Or

Define covalent bond. Draw the electronic dot structures of ethanoic acid, hydrogen sulphide, propanone and fluorine.

(Short Answer Type Questions)

4 e.

10. Why decomposition reactions are called the opposite of combination reactions ? Give examples and write equations of each reaction.

Or

What is a chemical equation ? How will you write a chemical equation ?

11. Explain the process of roasting. Illustrate your answer with examples.

Or

Differentiate between metal and non-metal on the bases of chemical properties (only *four*).

12. How do acids react with bases and metals ? Give the equations for each reaction.

Or

How sodium hydroxide is prepared ? Give the uses of sodium hydroxide.

(Very Short Answer Type Questions)

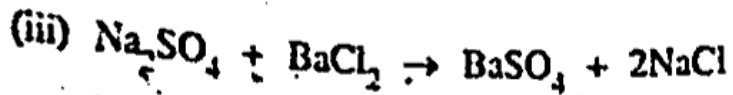
2 each

13. Write the electronic configuration of nitrogen and phosphorus.
14. Write the two unique properties of carbon, which leads to the huge number of carbon compounds.
15. Write an example of a metal which :
- (a) is a liquid at room temperature
 - (b) can be cut easily with knife
 - (c) is best conductor of heat.
 - (d) is a poor conductor of heat

(Multiple Choice Questions)

1 each

16. Choose the correct/most appropriate answer out of the following four alternatives given against each item and write it in your answer-book :
- (i) The nettle leaves contains :
- (a) acetic acid
 - (b) oxalic acid
 - (c) methanoic acid
 - (d) tartaric acid
- (ii) The atomic numbers of the elements P, Q, R and S are given below. Which of them have stable electronic configuration ?
- P - 15, Q - 17, R - 18, S - 19



The above reaction is an example of :

- (a) Combination reaction
- (b) Displacement reaction
- (c) Double displace reaction
- (d) Decomposition reaction

(iv) Which of the following elements belongs to group II ?

- (a) Lithium
- (b) Berillium
- (c) Iron
- (d) Potassium

Section-C

(LIFE SCIENCE)

(Long Answer Type Questions)

17. Describe the process of digestion in man.

Or

Describe the structure and function of nephrone and draw the well labelled diagram.

6

(Short Answer Type Questions)

4 each

18. Explain the function of forebrain.

Or

What is chemical co-ordination ? Write the three important plant hormones and their function.

19. Explain biological magnification. Will the levels of this magnification be different at different levels of magnification ?

Or

What are biodegradable and non-biodegradable substances ? Give two ways in which non-biodegradable substances would affect the environment. <https://www.jkboseonline.com>

20. Why do we need to manage our resources ? Write the two factors which affect our resources.

Or

Why should we conserve forests and wildlife ?

(Very Short Answer Type Questions)

2 each

21. Why is DNA copying an essential part for the process of reproduction ?
22. Draw the longitudinal section of a bisexual flower and label its parts.
23. Write the two factors which lead to the rise of new species.

(Multiple Choice Questions)

1 each

24. Choose the correct/most appropriate answer out of the four alternatives given against each item and write it in your answer-book :

(i) Which of the following control the formation of traits ?

- (a) Gene
- (b) DNA
- (c) RNA
- (d) Chromosomes

(ii) The essential parts of a flower is :

- (a) Calyx and corolla
- (b) Calyx and androecium
- (c) Corolla and gynoecium

~~(d)~~ Androecium and gynoecium

(iii) Homologous organs are :

- (a) Dissimilar origin and dissimilar structure
- (b) Dissimilar origin but similar function
- (c) Similar origin with similar or dissimilar function
- (d) Similar origin with dissimilar function

(iv) The first step in reproduction in multicellular organisms is :

(a) Formation of special sex cells

~~(b)~~ Cell division

(c) Cell growth

(d) Cell differentiation