

**N-4-B**

Roll No.....

Total No. of Questions : 24]

[Total No. of Printed Pages : 8

**XBAWZJ17**

**13604-B**

**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. Write units of power in case of lenses and define it.
6. Why are copper and aluminium wires usually used for electricity transmission lines ?
7. What is Biogas ? How is it produced ?

## (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) A ray of light passes from air to water it :

- (a) bends away from normal
- (b) bends towards normal
- (c) travels in the same direction
- (d) reflects back

(ii) An object is placed in between the pole and focus of a concave mirror. The image formed is :

- |                        |                       |
|------------------------|-----------------------|
| (a) smaller and real   | (b) larger and real   |
| (c) larger and virtual | (d) small and virtual |

(iii) Which of the following colour of the sunlight bends most when passed through a prism ?

- |          |            |
|----------|------------|
| (a) Red  | (b) Indigo |
| (c) Blue | (d) Violet |

(iv) Which of the following energy is not derived from the sun ?

- |                  |                       |
|------------------|-----------------------|
| (a) Tidal energy | (b) Geothermal energy |
| (c) Wave energy  | (d) Wind energy       |

**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.

6

**(Short Answer Type Questions)**

4 each

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.

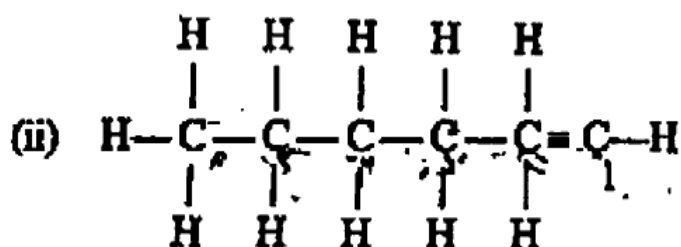
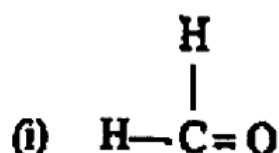
*Or*

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

## (Very Short Answer Type Questions)

2 each

13. Write the two unique properties of carbon that leads to the huge number of carbon compounds. . .
14. Define concentration of ores.
15. Write the names of the following compounds :



## (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 modern periodic table has prepared by :

- (a) Newland  
(b) Doberiener  
(c) Mendeleev  
(d) ☒ Henry Moseley

(ii) The valency of silicon is :

- (a) 2  
(b) 3  
(c) 4  
(d) 1

(iii) For a decomposition reaction the energy is required in the form of :

(a) Electricity

(b) Heat

(c) Light

☒ (d) All of the above

(iv) The chemical formula for washing soda is .....

(a)  $\text{Na}_2\text{CO}_3$

(b)  $\text{Na}_2\text{CO}_3 \cdot \text{H}_2\text{O}$

(c)  $\text{NaOH}$

☒ (d)  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$

Section-C

(LIFE SCIENCE)

(Long Answer Type Questions)

17. Describe the process of digestion in man.

Or

Describe the structure and function of nephron 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.

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. Write the two advantages of sexual reproduction over asexual reproduction.
22. What are analogous organs ?
23. Why is D.N.A. copying an essential part for the process of reproduction ?

(Multiple Choice Questions)

1 each

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

(i) The fluid which make the transport of sperms easy is called

.....

- |                           |                     |
|---------------------------|---------------------|
| (a) Seminal vesicle fluid | (b) Prostatic fluid |
| (c) Both (a) and (b)      | (d) Water           |

(ii) The number of chromosome pairs in human is :

(a) 24 pairs

(b) 25 pairs

☒ (c) 23 pairs

(d) 22 pairs

(iii) The forelimbs of man and birds are .....

(a) Homologous organs

(b) Analogous organs

(c) Vestigial organs

(d) None of the above

(iv) Hydra reproduces by .....

☒ (a) Budding

(b) Vegetative propagation

(c) Fission

(d) Fragmentation