

2026

SCIENCE

Full Marks – 80

Pass Marks – 20

Time – 3 (Three) Hours

The figures in the right hand margin indicate full marks for the questions.

SECTION – A (CHEMISTRY)

Marks – 26

Answer Question Nos. 1 to 4 in a sentence, a word or a phrase or an equation.

1. The atom of an element 'X' has 11 protons in its nucleus. Predict the group number of 'X' in the Modern Periodic Table. 1
2. How does *HCl* molecule become a polar molecule? 1
3. Write the formula of the acid salt formed by the reaction of Sodium hydroxide and carbonic acid. 1
4. What are amphoteric oxides? 1

Answer Question Nos. 5 - 8 in about 30 words.

5. Why are non-metals found on the right-hand side of the periodic table towards the top? 2
6. What will be molecular formula of the stable binary compound that would be formed by the combination of two elements X (atomic number =7) and Y (atomic number =11)? What is the type of bond formed? 2
7. How many grams of sulphuric acid will be needed to react completely with a solution containing 10.6g of sodium carbonate? 2

8. Why does the colour of copper sulphate solution change when an iron nail is dipped in it? Write relevant equation. 1+1=2

Answer Question. Nos. 9 - 11 in about 60 words.

9. How can you illustrate the reaction $2PbO(s) + C(s) \rightarrow 2Pb(s) + CO_2(g)$ is a redox reaction? Identify the oxidising agent. 2+1=3
10. (a) Draw a labelled diagram for the purification of copper by electrolytic refining. (b) Define anode mud. 2+1=3
11. Give a method for obtaining baking soda. How is 'baking powder' different from 'baking soda'? 2+1=3

Answer Question No. 12 in about 100 words.

12. A carbon compound 'X' on heating with excess conc. H_2SO_4 forms another carbon compound 'Y' which on addition of hydrogen in the presence of nickel catalyst forms a saturated carbon compound 'Z'. One molecule of 'Z' on combustion forms two molecules of carbon dioxide and three molecules of water. Identify X, Y and Z and write the chemical equations for the reactions involved. 5

SECTION - B (PHYSICS)

Marks - 26

Answer Question Nos. 13 to 16 in a sentence, a word or a phrase or an equation

13. Why is electric fuse placed in series with the device? 1
14. State the second law of refraction. 1
15. Give one quality for an ideal source of energy. 1
16. Define solar constant. 1

Answer Question Nos. 17 - 20 in about 30 words

17. Give one advantage & one disadvantage of conventional source of energy over the non-conventional source of energy. 1+1=2

18. Name any two common refractive defects of eye. Which type of lens (or lenses) are used to rectify the defect? 2

19. What is short circuiting? Mention the possible consequences of short circuiting. 1+1=2

20. What is an electric motor? What is its principle? 1+1=2

Answer Question Nos. 21 - 23 in about 50 words each.

21. An object is placed at a distance of 10cm from a convex lens of focal length 15 cm. Find the position, nature and magnification of the image. 3

22. Draw a schematic diagram of nuclear power plant and indicate its different components. 3

23. Define an electromagnet. Write two factors on which the strength of an electromagnet depends. 3

Answer Question No. 24 in about 100 words.

24. What are the factors on which resistance of a resistor depends? State two advantages & two disadvantages for (a) series combination and (b) parallel combination. 1+2+2=5

Or,

(A) State Ohm's Law. (B) Draw a graph showing the variation of current through a resistor with the increase of potential difference at constant temperature. (C) Two resistors of resistances $10\ \Omega$ and $20\ \Omega$ are combined in parallel. A battery supplies a current of 6A to the combination. Calculate the potential difference of the battery and the currents in each resistor. 1+1+3=5

SECTION – C (BIOLOGY)

Marks - 28

Answer Question Nos. 25 - 28 in one sentence each.

25. What is peristalsis? 1

26. Which plant did Mendel use for his hybridization experiments? 1
27. What is an apical dominance? 1
28. Why do organisms and environment form an ecosystem together? 1
- Answer Question Nos. 29 - 33 in about 30 words each.*
29. How does glucose break down in the absence of oxygen in (a) yeast and (b) human muscles? 2
30. Differentiate between phenotypic ratio and genotypic ratio using Mendel's monohybrid cross. 2
31. What is a reflex arc? Name its components. 2
32. What are decomposers? Why are they important? 2
33. Draw a neat, labelled diagram of a neuron and label its Dendrite, Axon, and Nerve Ending. 2
- Answer Question Nos. 34 - 36 in about 50 words each.*
34. Mention any three examples of each of renewable and non-renewable natural resources. 3
35. What is speciation? Describe how new species are formed. 3
36. Explain the different trophic levels in food chain. 3
- Answer Question No. 37 in about 100 words.*
37. Explain Mendel's Law of Independent Assortment with a dihybrid cross. 5

Or,

Explain how hormones maintain homeostasis in the body with examples. 5