

SYLLABUS : Acid, Basis and Salts, Metals and Non-Metals, Carbon and its Compounds, Control and Coordination, Reproduction, Light, Magnetic Effect of Current, Management of Natural Resources.

GENERAL INSTRUCTIONS : Draw Diagrams with Pencils.

- All questions are compulsory. **Maximum Marks are 60.**
- The question paper consists of 25 Questions.
- **Section – A :** Question 1 to 10 are 1 mark each.
- **Section – B :** Question 11 to 20 are 3 marks each.
- **Section – C :** Question 21 to 24 are 4 marks each.

SECTION A : (1 × 10 = 10)

1. With the increase in the concentration of hydrogen ions, the pH value will:
(a) Increase (b) Decrease (c) Remain constant (d) Remain fluctuating
2. Quick lime reacts with water to give
(a) Ca(OH)₂ (b) CaCl₂ (c) CaOCl₂ (d) CaO

For question number 3, statements are given-one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below:

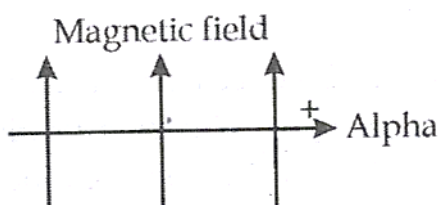
- (i) Both A and R are true and R is correct explanation of the assertion.
(ii) Both A and R are true but R is not the correct explanation of the assertion.
(iii) A is true but R is false.
(iv) A is false but R is true.
3. **Assertion:** Covalent bonds are formed by the sharing of electrons between two atoms so that both can achieve a completely filled outermost shell.
Reason: Carbon forms covalent bonds with itself and other elements such as hydrogen, oxygen sulphur, nitrogen and chlorine.
(i) A (ii) B (iii) C (iv) D
4. The brain is responsible for:
(a) thinking (b) regulating the heart beat
(c) balancing the body (d) all of the above.
5. Which of the following statements about the Modern Periodic Table is correct?
(a) It has 18 horizontal rows known as Periods
(b) It has 7 vertical columns known as Periods
(c) It has 18 vertical columns known as Groups
(d) It has 7 horizontal rows known as Groups
6. What are Sexually Transmitted Diseases (STD)?

7. The most important safety method used for protecting home appliances from short circuiting or overloading is:
- (a) earthing (b) use of fuse
(c) use of stabilizers (d) use of electric meter
8. The strength of magnetic field inside a long current carrying straight solenoid is:
- (a) more at the ends than at the centre
(b) minimum in the middle
(c) same at all points
(d) found to increase from one end to the other
9. Which of the following phenomena contributes significantly to the reddish appearance of the sun at sunrise or sunset?
- (a) Dispersion of light (b) Scattering of light
(c) Total internal reflection of light (d) Reflection of light from the earth
10. What happens when dilute hydrochloric acid is added to iron filings? Tick the correct answer.
- (a) Hydrogen gas and iron chloride are produced.
(b) Chlorine gas and iron hydroxide are produced.
(c) No reaction takes place.
(d) Iron salt and water are produced.

SECTION B : (3 × 10 = 30)

11. Equal lengths of magnesium ribbon are taken in two test tubes A and B. H_2SO_4 is added to test tube A and H_2CO_3 in test tube B in equal amounts.
- (a) Identify the test tube showing vigorous reaction.
(b) Give reason to support your answer.
(c) Name the gas liberated in both the test tubes. How will you prove its liberation?
- OR**
- Write balanced chemical equation for the following:
- (i) Bleaching powder is kept open in air.
(ii) Blue crystals of copper sulphate are heated
(iii) Chlorine gas is passed through dry slaked lime.
(iv) Carbon dioxide gas is passed through lime water.
(v) NaOH solution is heated with zinc granules.
12. When a copper wire is left in silver nitrate solution, it is observed that the solution turns bluish green.
- (a) Explain the observation.
(b) Write the balanced chemical equation to represent the change taking place.
13. (a) Name the human male reproductive organ that produces sperms and also secretes a hormone. Write the functions of the secreted hormone.
(b) Name the parts of the human female reproductive system where.
- (i) Fertilisation takes place
(ii) Implantation of the fertilisation egg occurs. Explain how the embryo gets nourishment inside the mother's body?
14. An object of height 5 cm is placed perpendicular to the principal axis of a concave lens of focal length 10 cm. if the distance of the object from the optical centre of the lens is 20 cm, determine the position, nature and size of the image formed using the lens formula.

15. (i) which of the following hydrocarbons undergo addition reaction?
 C_2H_6 , C_3H_8 , C_3H_6 , C_2H_2 and CH_4
(ii) What is meant by homologous series of carbon compounds =? Classify the following carbon compounds into two homologous series and also name them.
 C_3H_4 , C_3H_6 , C_4H_6 , C_4H_8 , C_5C_8 , C_5C_{10}
16. Explain the following terms connected with the eye. (i) Ciliary muscles (ii) Accommodation (iii) Blind spot
17. What are magnetic field lines? How is the direction of magnetic field at a point determined? Mention two important properties of magnetic field lines.



18. An organic compound 'A' has a molecular formula C_2H_6O . 'A' on addition of oxygen gives compound 'B' which gives effervescence with baking soda.
(i) Identify 'A' and 'B'.
(ii) Write the reaction of B with baking soda.
19. State the laws of refraction of light. Explain the term 'absolute refractive index of a medium' and write an expression to relate it with the speed of light in vacuum.
20. State how concentration of auxin stimulates the cells to grow longer on the side of the shoot which is away from light?

SECTION C : (5 × 4 = 20)

21. (i) What is insulin? Why are some patients of diabetes treated by giving injection of insulin?
(ii) How is the movement of leaves of the sensitive plants different from the movement of a shoot towards light?
22. Give reason for the following:
(i) Gold and platinum are used in jewellery.
(ii) Copper cannot displace hydrogen from dilute acids.
(iii) Stainless steel does not rust easily.
(iv) Metals can be given different shapes according to our needs.
(v) Zinc does not give hydrogen gas on reacting with HNO_3 .
23. (a) A student is unable to see clearly the words written on the blackboard placed at a distance of approximately 3 m from him. Name the defect of vision the boy is suffering from. State the possible causes of this defect and explain the method of correcting it.
(b) Why do stars twinkle? Explain.
24. Write the chemical formula and name of the compound which is the active ingredient of all alcoholic drinks. List its two uses. Write chemical equation and name of the product formed when this compound reacts with –
(a) Sodium metal
(b) hot concentrated sulphuric acid.