SAMPLE QUESTION PAPER - 1

Solved

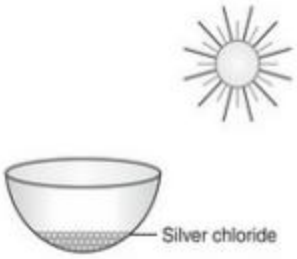
Time : 3 Hours **Maximum Marks : 90**

General Instructions :

1. The question paper comprises of **two sections, A** and B. You have to attempt both the sections.
2. All questions are **compulsory**.
3. All questions of **Section A** and **all** questions of **Section B** are to be attempted separately.
4. Question numbers ***1 to 3 in Section A are one mark questions.*** These are to be answered in **one word** or **one sentence**.
5. Question numbers ***4 to 6 in Section A are two marks questions,*** to be answered in about **30** words.
6. Question numbers ***7 to 18 in Section A are three marks questions,*** to be answered in about 50 words.
7. Question numbers ***19 to 24 in Section A are five marks questions,*** to be answered in about 70 words.
8. Question numbers ***25 to 36 in Section B are based on practical skills.*** Question 25 to 33 carry one mark each and Question numbers 34 to 36 carry two marks each.

SECTION 'A'

1. Why in solar system black coloured glases are used ? List two solar devices which make use of this property in their design. **1**
2. When a current carrying conductor is kept in a magnetic field, state the position when maximum force acts on it. **1**
3. A charge of 150 coulomb flows through a wire in one minute. Find the electric current flowing through it. **1**
4. Why does the colour of copper sulphate solution change when an iron nail is dipped in it ? Write chemical equation for the reaction involved. **2**
5. Give reactions of calcium and magnesium with dilute nitric acid. **2**
6. State the factors on which, at a given temperature, the resistance of a cylindrical conductor depends. State the SI unit of resistivity. **2**
7. The following diagram displays a chemical reaction. Observe it carefully and answer the following questions :



(a) Identify the type of chemical reaction that will take place and define it. How will the colour of the salt change ?

(b) Write the chemical equation of the reaction that takes place.

(c) Mention one commercial use of this salt. 3

8. What happens when :

(i) Dilute hydrochloric acid is added to solid sodium carbonate.

(ii) Quicklime is treated with water.

(iii) Sodium chloride solution is added to lead nitrate solution.

Also write the chemical equation in each case. 3

9. (a) Give an example for a combination reaction which is exothermic.

(b) Identify the oxidising agent, reducing agent in the following reaction :

$$H_2S + Cl_2 \longrightarrow 2HCl + S$$

(c) Name the phenomenon due to which the taste and smell of oily food changes when kept for a long time in open. Suggest one method to prevent it. 3

10. The inner lining of the small intestine has numerous finger like projections. What are they called ? List their functions. 3

11. Write three differences between metals and non-metals on the basis of chemical properties. 3

12. The resistance of a wire of 0.01 cm radius is 10Ω. If the resistivity of the material of the wire is 50×10^{-8} ohm meter, find the length of the wire. 3

13. Derive an expression for electric energy consumed in a device in terms of V, I and t, whre V is the potential difference applied to it, I is the current drawn by it and t is the time for which the current flows ? 3

14. What is an electromagnet ? How can we determine north and south pole of an electromagnet with the help of magnetised iron bar. 3

15. (a) Write the role of motor areas in brain.

(b) A nerve input signal travelled only upto the spinal cord and gave output signal for a response. What type of action will the body show-voluntary or involuntary ?

(c) Draw a nerve pathway for the above action. 3

16. Describe heterotrophic mode of nutrition and give its examples. Name the three types of this nutrition. 3

17. Neha is studying in IXth standard. One day, she returned home from the school in the afternoon and noticed that her younger brother, Naresh, was watching TV keeping all the lights and fans 'ON'. She also noticed that the windows were closed and curtains were drawn, which made the room dark. She calmly opened the windows, drew the curtains aside, which illuminated and aerated the room. Then, she asked Naresh to turn 'OFF' the lights and fans. She also explained the reason behind her action. (Assume that they were getting electricity supply from the thermal power plant.)

(a) List two values exhibited by Neha.

(b) Explain how she tried to give the same values to her brother. 3

18. Write three reasons for the opposition of the construction of Tehri dam on the river Ganga. 3

19. (i) Acoount for the following :

(a) White silver chloride truns grey in sunlight.

(b) Brown coloured copper powder on heating in air turns into black coloured substance.

(ii) What do you mean by :

(a) Displacement reaction

(b) Reduction reaction

(c) Combination reaction ?

Write balanced chemical equation. 5

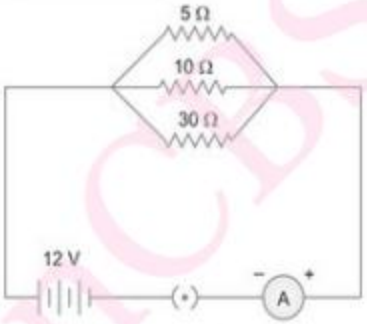
20. (i) How will you convert a given set of resistors so that the equivalent resistance is increased ? Give reason for your answer.

(iii) In the given circuit diagram, calculate :

(a) the value of current through each resistor

(b) the total current in the circuit

(c) the total effective resistance of the circuit. 5



21. (a) While diluting an acid, why is it recommended that the acid should be added to water and not water to the acid ?

(b) Explain why aqueous solution of an acid conducts electricity.

(c) You have four solutions A, B, C and D. The pH of solution A is 6, B is 9, C is 12 and D is 7.

(i) Identify the most acidic and the most basic of the solutions.

(ii) Arrange the above four solutions in the increasing order of their H^+ ion concentration.

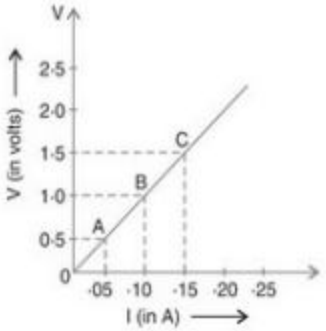
(iii) State the change in colour of pH paper on dipping in solution C and D. 5

22. (a) State the SI unit of current and define it.

(b) An electric circuit is to be set-up for studying the relationship between the potential difference maintained between the points 'X' and 'Y', and the current flowing through the wire XY. This circuit will consist of a nichrome wire XY, an ammeter, a voltmeter, four cells of 1·5 V each and a plug key.

(i) Draw its circuit.

(ii) The graph shown in the figure was plotted between V and I. What would be the value of V and I corresponding to the points A and C on the graph ? Analyse these values and draw the conclusion. 5



23. (a) Draw a diagram of human respiratory system and label the following :
    (i) The part where air is filtered by fine hair and mucus.
    (ii) The part that terminates in balloon-like structures.
    (iii) Balloon-like structures where exchange of gases takes place.
    (iv) The part that separates chest cavity from abdominal cavity.
    (b) Why is the rate of breathing in aquatic organisms much faster than in terrestrial organisms ? 5

24. (a) Draw a neat labelled diagram of human brain.
    (b) Name the gland that secretes insulin. Why are some patients of diabetes treated by giving injections of insulin ? 5

SECTION 'B'

25. **Four solutions I, II, III and IV were given to a student to test their acidic or basic nature using pH paper. He observed that the colour of pH paper turned to Red, Blue, Green and Orange respectively when dipped in these four solutions. The correct conslusion of this observation would be :** 1

(A) I, II, III are acidic (B) I and IV are acidic
(C) II, III and IV are basic (D) II and IV are basic

26. **Vinegar has a pH of :** 1

(A) > 7 (B) < 7
(C) 7 (D) 12

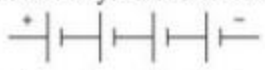
27. **Which of the following represent Ohm's Law ?** 1

(A) R = VI (B) V = IR
(C) I = VR (D) R = VI

28. **The current flowing through a resistor connected in a circuit and the potential difference developed across its ends is shown in the diagram. The approximate value of the resistor is :** 1

(A) 2 Ω (B) 6 Ω (C) 10 Ω (D) 15 Ω

29. **A student has to connect 4 cells of 1.5 V each to form a battery of 6 V. He connects the cells in four different ways as shown below :**

I. 
II. 
III. 
IV. 

The correct arrangement is : 1

(A) I (B) II

(C) III (D) IV

30. **The resistance of an electric bulb drawing 12·0 A current at 6·0 V will be :** 1

(A) 0·5 Ω (B) 5 Ω

(C) 0·2 Ω (D) 2 Ω

31. **Quick lime is a :** 1

(A) white powder (B) brown powder

(C) blue powder (D) yellow powder

32. **The correct experimental set-up to demonstrate a displacement reaction is :** 1

(A) Copper turnings in ferrous sulphate solution

(B) Iron nails in ferrous sulphate solution

(C) Iron nails in copper sulphate solution

(D) Water added to quick lime

33. **Radhika put few zinc granules in the pale green solution of ferrous sulphate to make it colourless. This is an example of :** 1

(A) decomposition reaction (B) combination reaction

(C) displacement reaction (D) double displacement reaction

34. How can the aqueous solutions of barium chloride and sodium sulphate be prepared ? 2

35. What precautions should be taken to show that light is essential for photosynthesis ? 2

36. The current flowing through a conductor and the potential difference across its ends are as per the readings of ammeter and voltmeter shown below. Find the resistance of the conductor. 2

290 mA

5.8 V