

1080612 - C1

Class - X

**SCIENCE**

Time allowed : 3 to 3½ hours

Maximum Marks : 80

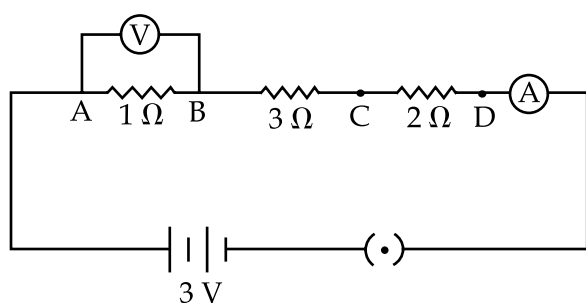
Total No. of Pages : 10

**General Instructions :**

1. The question paper comprises of two sections, **A** and **B** you are to attempt both the sections.
2. All questions are **compulsory**.
3. There is no overall choice. However, internal choice has been provided in all the three questions of five marks category. Only one option in such question is to be attempted.
4. All questions of section A and all questions of section B are to be attempted separately.
5. Question numbers **1** to **4** in section A are one mark questions. These are to be answered in **one word** or **one sentence**.
6. Question numbers **5** to **13** are two mark questions, to be answered in about **30 words**.
7. Question numbers **14** to **22** are three mark questions, to be answered in about **50 words**.
8. Question numbers **23** to **25** are five mark questions, to be answered in about **70 words**.
9. Question numbers **26** to **41** in section B are multiple choice questions based on practical skills. Each question is a one mark question. You are to choose one most appropriate response out of the four provided to you.
10. An additional 15 minutes time has been allotted to read this question paper only.

## SECTION - A

1. A compound which is prepared from gypsum has the property of hardening when mixed with proper quantity of water. Identify the compound and write its chemical formula. 1
2. What happens to resistance of a conductor when temperature is increased? 1
3. Which hormone is injected to a diabetic patient and why ? 1
4. What type of energy possessed by huge waves near the sea shore ? 1
5. While diluting an acid, why is it not recommended that acid should be added to water and not water to the acid ? 2
6. Write the chemical formula of bleaching powder. How is bleaching powder prepared? Why is it used in textile industry ? 2
7. Why is sodium kept immersed in kerosene oil ? 2
8. How would the reading of (V) change if it is connected between B and C ? 2



9. Explain briefly different methods of producing induced emf 2
10. Describe an activity to draw the magnetic field is produced around a current carrying conductor 2
11. Which is the internal energy reserve in plants? Do the animals have the same energy reserve ? 2
12. Explain why ? 2
  - (a) Solar cookers are covered with glass plate
  - (b) The solar cooker is painted black from inside.

13. How does our body maintain blood sugar level ? 2
14. (a) Why is combination reaction an oxidation reaction ? 3  
 (b) How will you test whether the gas evolved in a reaction is hydrogen ?  
 (c) Write the balanced chemical reaction involved when silver chloride is kept in sunlight.
15. A gas 'X' reacts with lime water and forms a compound 'Y' which is used as a bleaching agent in chemical industry. Identify 'X' and 'Y'. Give the chemical equation of the reactions involved. 3
16. (a) Atomic number of Mg is 12 and Oxygen is 8. Show the formation of MgO from its elements. 3  
 (b) By which method metals of high reactivity is purified ?
17. Table gives the Resistivity of three samples (in  $\Omega$  m)
- | Samples         | A                    | B                    | C                   |
|-----------------|----------------------|----------------------|---------------------|
| (a) Resistivity | $1.6 \times 10^{-8}$ | $7.5 \times 10^{17}$ | $44 \times 10^{-6}$ |
18. Describe an activity to draw the magnetic field line around a coil of wire 3
19. Name two safety measures commonly used in electric circuits and appliances, what precautions should be taken to avoid the over loading of domestic electric circuits. 3
20. (a) What is thermit reaction? How it is used in joining railway tracks and cracked parts of machines. 3  
 (b) How do we get stainless steel ?
21. (a) How does construction of dams across the river get linked with production of green house gas 3  
 (b) How do technological inputs improve the efficiency of bio mass fuels
22. If you are happened to touch a hot object, what would be your response? How will it happen? Show it with the help of diagram. 3
23. (a) What happens chemically when Quick lime is added to water ? 5  
 (b) Balance the following chemical equation  
 $MnO_2 + HCl \rightarrow MnCl_2 + Cl_2 + H_2O$   
 (c) What is decomposition reaction? Explain it with suitable example.

OR

- (a) Balance the chemical equation  

$$\text{Fe(s)} + \text{H}_2\text{O(g)} \rightarrow \text{Fe}_3\text{O}_4\text{(s)} + \text{H}_2\text{(g)}$$
- (b) Identify the type of reaction in the equation given below  

$$\text{Na}_2\text{SO}_4\text{(aq)} + \text{BaCl}_2\text{(aq)} \rightarrow \text{BaSO}_4\text{(s)} + \text{NaCl(aq)}$$
- (c) You could have noted that when copper powder is heated in a china dish, the surface of Copper powder becomes coated with black colour substance.
- Why has this black coloured substance formed?
  - What is that black substance
  - Write the chemical equation of the reaction take place.

24. (a) Resistors are given as  $R_1 = 10\ \Omega$ ,  $R_2 = 20\ \Omega$  and  $R_3 = 30\ \Omega$ . Calculate the effective resistance when they are connected in series. Also calculate the current flowing when the combination is connected to a 6V battery. 5
- (b) 3 resistors  $R_1$ ,  $R_2$  and  $R_3$  are connected in series to a battery V. Draw the circuit diagram showing the arrangement. Derive an experiment for the equivalent resistance of the combination.

**OR**

- State Ohm's law
- Draw a circuit diagram for the verification of ohm's law. Also plot graphically the variation of current with potential difference.
- Calculate the resistance of a wire, when a potential difference of 2V is maintained for 1A current to flow through it

25. (i) Draw the sectional view of the human heart and label the following parts. 5
- |                     |                        |
|---------------------|------------------------|
| (a) Left atrium     | (b) Pulmonary arteries |
| (c) Right ventricle | (d) Aorta              |
- Why are the valves needed in the heart
  - Leakage of blood from vessels reduces the efficiency of pumping system. How is the leakage prevented.

**OR**

- Draw the diagram of human respiratory system and label the following parts.
 

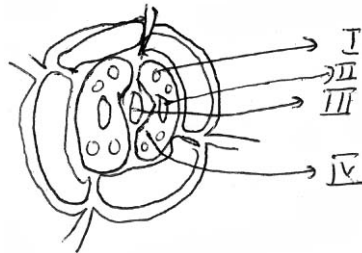
|               |                        |
|---------------|------------------------|
| (a) Pharynx   | (b) Trachea            |
| (c) Diaphragm | (d) Rings of Cartilage |
- Why do aquatic animals breathe faster than terrestrial animals ?
- How are lungs designed in human beings to maximise the area for exchange of gases

**OR**

- Why are black surface utilised for making solar cookers ?
- Solar cookers have mirror and glass plates. Explain the purpose of these arrangements in solar cookers.
- Write two points of limitations of using solar cookers.



29. In the following sketch of the stomatal apparatus, the parts I, II, III and IV were labelled differently by four students. 1



The correct labelling out of the following is

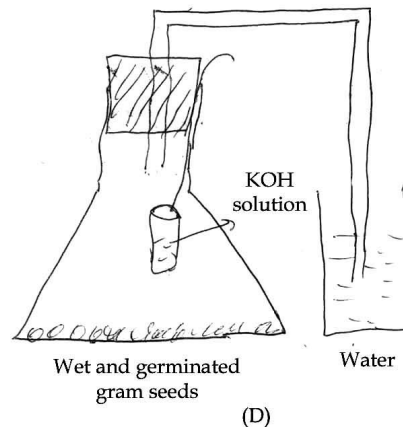
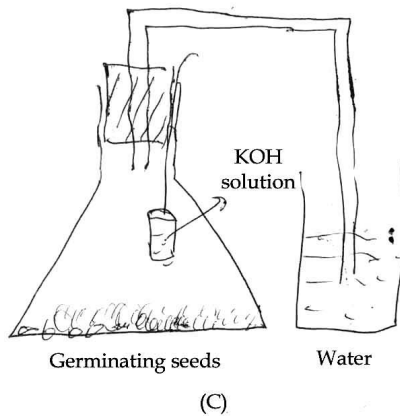
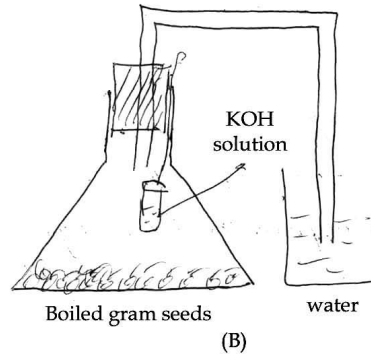
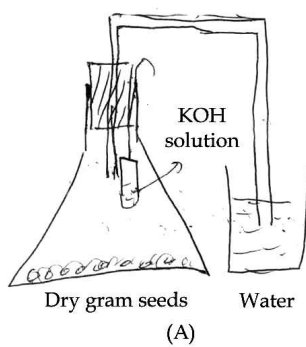
- (a) (I) guard cell      (II) cytoplasm      (III) nucleus      (IV) stoma
- (b) (I) cytoplasm      (II) nucleus      (III) chloroplast (IV) stoma
- (c) (I) chloroplast      (II) nucleus      (III) stoma      (IV) cytoplasm
- (d) (I) guard cell      (II) cytoplasm      (III) nucleus      (IV) chloroplast
30. Given below are the steps in the preparation of a temporary mount of a stained leaf peel. 1

- (i) Cover the material with the coverslip
- (ii) Transfer the stained peel to a clean glass slide and add a drop of glycerine
- (iii) Remove the peel from lower surface of leaf
- (iv) Drop it in water in Petri dish and add a drop of safranin stain.

The correct sequence of the experiment steps is

- (a) (iii), (iv), (ii), (i)
- (b) (i), (ii), (iii), (iv)
- (c) (ii), (iii), (iv), (i)
- (d) (iii), (iv), (i), (ii)

31. Given below are four different set ups to show that  $\text{CO}_2$  is released during respiration. 1



The set up will give the desired result with.

- (a) A - dry gram seeds                      (b) B - Boiled gram seeds  
 (c) C - germinating gram seeds          (d) D - Wet and germinated gram seeds.
32. Four students (a), (b), (c) and (d) measured the pH values of water, lemon juice and sodium bicarbonate solution. What is the correct decreasing order of pH values 1
- (a) Water > lemon juice > sodium bicarbonate  
 (b) Lemon juice > water > sodium bicarbonate  
 (c) Sodium bicarbonate > water > lemon juice  
 (d) Water > sodium bicarbonate > lemon juice
33. Four students (a), (b), (c) and (d) of class X measured the pH values of each one of the given samples of distilled water, acetic acid, dilute hydrochloric acid, and a solution of sodium hydroxide using pH papers. Tell which one of the following represents a correct measurement. 1

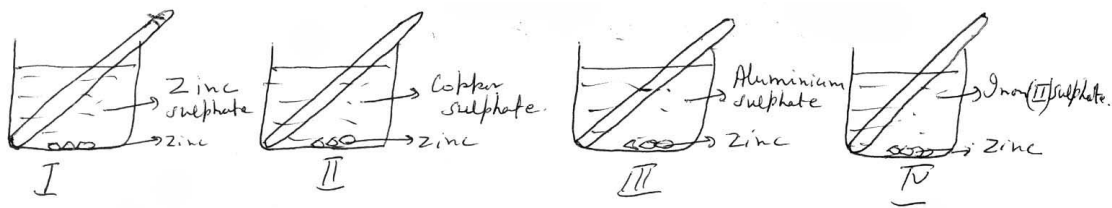
| Student | Water | Acetic acid | Hydrochloric acid | Sodium hydroxide |
|---------|-------|-------------|-------------------|------------------|
| (a)     | 7     | 1           | 1                 | 1                |
| (b)     | 7     | 3           | 1                 | 1                |
| (c)     | 7     | 1           | 1                 | 13               |
| (d)     | 7     | 3           | 1                 | 13               |

34. Four students studies reactions of Zinc and sodium carbonate with dilute hydrochloric acid and dilute sodium hydroxide solutions and presented their results as follows. The (✓) represents evolution of gas where as (X) represents absence of any reaction. 1

|      | Zn  | Na <sub>2</sub> CO <sub>3</sub> |      | Zn | Na <sub>2</sub> CO <sub>3</sub> |      | Zn  | Na <sub>2</sub> CO <sub>3</sub> |      | Zn | Na <sub>2</sub> CO <sub>3</sub> |
|------|-----|---------------------------------|------|----|---------------------------------|------|-----|---------------------------------|------|----|---------------------------------|
| HCl  | ✓   | ✓                               | HCl  | ✓  | X                               | HCl  | X   | X                               | HCl  | ✓  | ✓                               |
| NaOH | ✓   | X                               | NaOH | ✓  | ✓                               | NaOH | ✓   | ✓                               | NaOH | X  | X                               |
|      | (A) |                                 | (B)  |    | (C)                             |      | (D) |                                 |      |    |                                 |

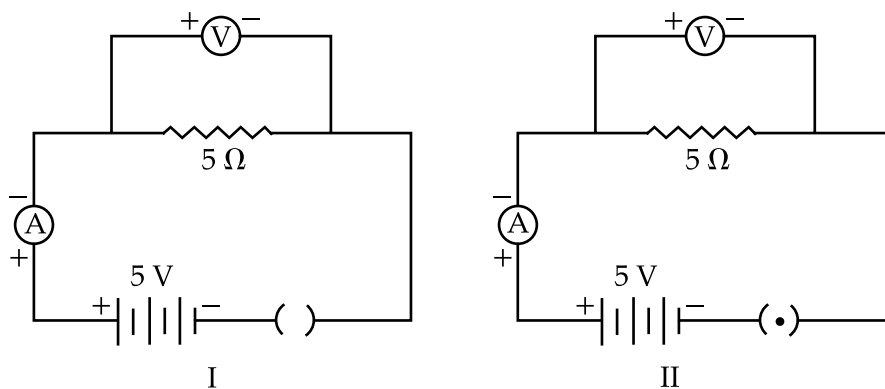
The right set of observation is that of student

- (a) A (b) B (c) C (d) D
35. When dilute hydrochloric acid is added to granulated zinc placed in a test tube, the observation made is 1
- (a) The surface of the metal turns shining  
 (b) The reaction mixture turns milky  
 (c) odour of chlorine is observed  
 (d) a colourless and odourless gas evolves with bubbles.
36. Zinc granules were added to Zinc sulphate, copper sulphate, aluminium sulphate and iron sulphate solution as shown below. You would observe the deposition of metal on zinc in beakers : 1



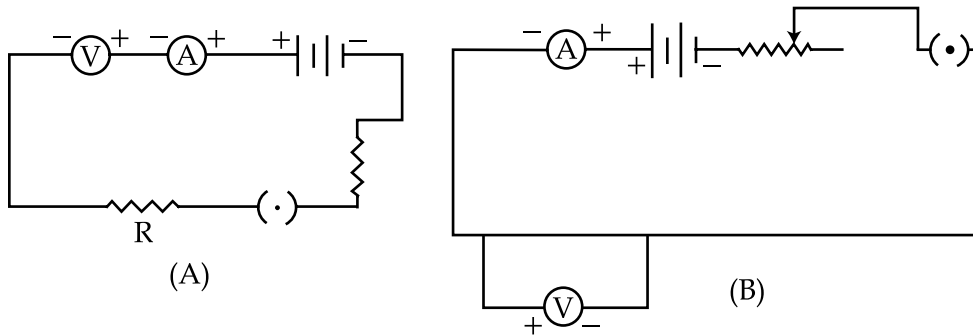
- (a) I and III (b) II and IV (c) I and II (d) III and IV

37. For the circuit shown in figure's I and II the ammeter readings would be 1



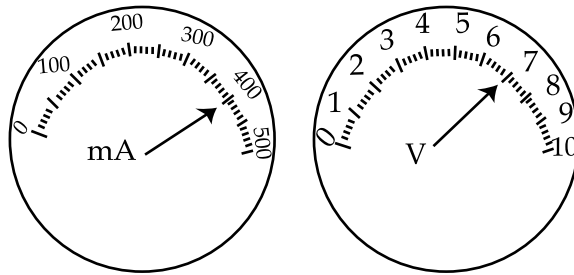
- (a) 1A in circuit I and 0A in circuit II (b) 0A in both circuits  
 (c) 1A in both circuits (d) 0A in circuits I and 1A in circuit II

38. Which of the following experimental set ups is correct for verification of ohm's law? 1



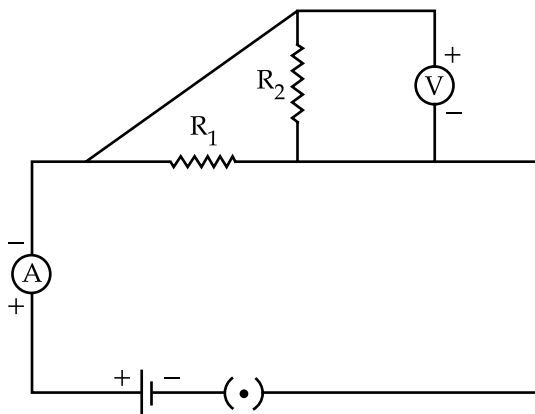
- (a) A      (b) B      (c) Both A and B      (d) Neither A nor B

39. The current flowing through a conductor and the potential difference across its two ends are as per readings of the ammeter and the voltmeter shown below. The resistance of the conductor would be 1



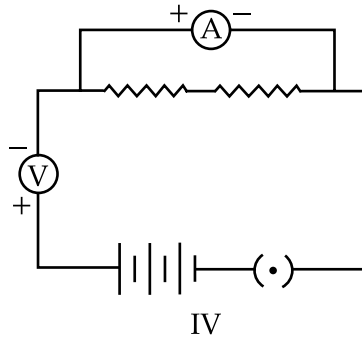
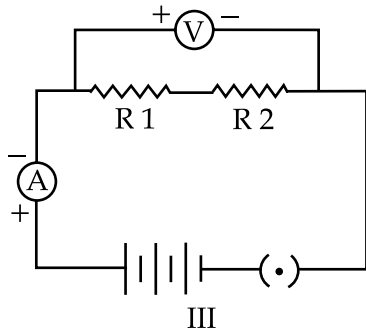
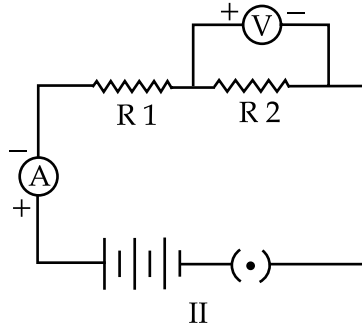
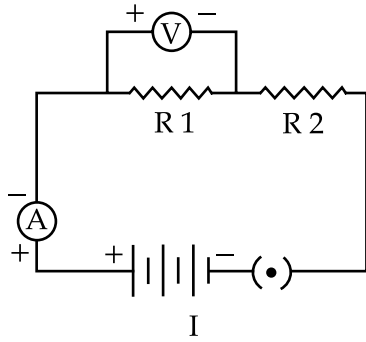
- (a)  $0.02 \Omega$       (b)  $0.24 \Omega$       (c)  $20.0 \Omega$       (d)  $24.0 \Omega$

40. Which of the circuit components in the following circuit diagram are connected in parallel? 1



- (a)  $R_1$  and  $R_2$  only      (b)  $R_2$  and V only  
(c)  $R_1$  and V only      (d)  $R_1, R_2$  and V.

41. In the experiment on finding the equivalent resistance of two resistors connected in series the voltmeter is correctly connected only in circuit. 1



(a) I

(b) II

(c) III

(d) IV

- o 0 o -