

## CLASS X : SCIENCE PAPER SET-3

### 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. **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 in **one sentence**
5. Question numbers **4 to 6 in Sections-A** are **two marks** questions. These are to be answered in about **30 words** each.
6. Question numbers **7 to 18 in Section-A** are **three marks** questions. These are to be answered in about **50 words** each
7. Question numbers **19 to 24 in Section-A** are **five marks** questions. These are to be answered in about **70 words** each.
8. Question numbers **25 to 33 in Section-B** are multiple choice questions based on practical skills. Each question is a **one mark** question. You are to select one most appropriate response out of the four provided to you.
9. Question numbers **34 to 36 in Section-B** are questions based on practical skills are **two marks** questions.

### SECTION A

1 **Why is it advised to use iodised salt in our diet ?**

2 How is the type of current that we receive in domestic circuit different from the one that runs a clock ?

3 **What is meant by the term 'Biomass' ?**

4 What is meant by amphoteric oxides ? Choose the amphoteric oxides from the following :

$\text{Na}_2\text{O}$ ,  $\text{ZnO}$ ,  $\text{CO}_2$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{H}_2\text{O}$

5 (a)  $\text{A} + \text{BC} \longrightarrow \text{AC} + \text{B}$

(b)  $\text{A} + \text{B} \longrightarrow \text{C}$

(c)  $\text{PQ} + \text{RS} \longrightarrow \text{PS} + \text{RQ}$

(d)  $\text{A}_2\text{O}_3 + 2\text{B} \longrightarrow \text{B}_2\text{O}_3 + 2\text{A}$

State the type of chemical reactions, represented by the following equations :

6 Name the glands present in the wall of the stomach that release secretions for digestion of food. Write the three components of secretion that are released by these glands.

7 (a) Define an acid - base indicator. Mention one synthetic acid - base indicator.

(b) If someone in the family is suffering from a problem of acidity after overeating, which of the following substances would you suggest as a remedy ?

lemon juice, vinegar or baking soda solution.

**Mention the property on the basis of which you will choose the remedy.**

- 8 (a) Three acidic solutions A, B and C have pH = 0, 3 and 5 respectively.
- Which solution has highest concentration of  $H^+$  ions. ?
  - Which solution has the lowest concentration of  $H^+$  ions.
- (b) How concentrated sulphuric acid can be diluted ? Describe the process.

9 State what would happen if :

- some zinc pieces are placed in blue copper sulphate solution.
- some copper pieces are placed in green ferrous sulphate solution.
- an iron nail is dipped in a solution of copper sulphate for some time.

10 Food when left for a long time tastes/smells bad. What is this condition called ? Mention any four ways by which we can prevent this condition.

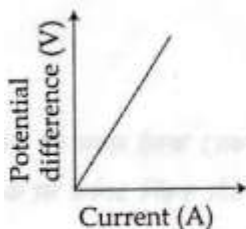
11 Describe the structure and function of nephron with the help of diagram.

12 Mention three major regions of brain. Write one function of each.

13 What do the following transport ?

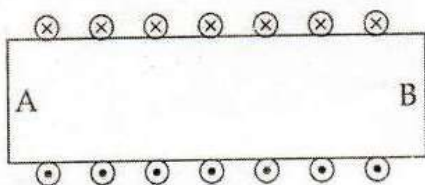
- |               |                      |                      |
|---------------|----------------------|----------------------|
| (i) Xylem     | (ii) Phloem          | (iii) Pulmonary vein |
| (iv) Venacava | (v) pulmonary artery | (vi) Aorta           |

14 V - I graph for a conductor is as shown in the figure :



- What do you infer from this graph ?
- State the law expressed here.
- Name the physical quantity represented by the slope of this graph and state its SI unit.

15 Diagram shows the lengthwise section of a current carrying solenoid.  $\otimes$  indicates current entering into the page,  $\odot$  indicates current emerging out of the page. Decide which end of the solenoid A or B, will behave as north pole. Give reason for your answer. Also draw field lines inside the solenoid.



16 The resistance of a wire of 0.01 cm radius is  $10 \Omega$ . If the resistivity of the material of the wire is  $50 \times 10^{-8}$  ohm meter, find the length of the wire.



17 Shyam's father is a builder. While working on a project of developing a residential complex he ensured that the surrounding was made green by planting trees. Also he installed solar water heaters on the roof tops and solar panel for lighting streets of the complex at night

- (a) Explain two values exhibited by shyam's father.
- (b) By opting for solar panel and solar geysers in the residential complex how has Shyam's father made all the future residents of the complex contribute to save energy crises.

18 State any three reasons to justify that LPG is considered an ideal fuel

- 19 (a) What are anhydrous and hydrated salts ? Explain with a suitable example of each.
- (b) How is Plaster of Paris prepared ? What reaction takes place when it sets to a hard mass ?

20 (a) Copper produced by heating the ore in air is not very pure. Describe the method used for refining impure copper. Draw labelled diagram of the process.

(b) Write chemical equations for the reactions taking place when :

(i) Zinc sulphide is heated in air.

(ii) Zinc carbonate is calcined.

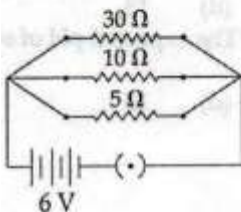
21 (a) Define reflex arc. Draw a flow chart showing the sequence of events which occur during sneezing

(b) List four plant hormones. Write one function of each

22 Draw a labelled circuit diagram showing three resistors  $R_1$ ,  $R_2$  and  $R_3$  connected in series with a battery (E), a rheostat (Rh), a plug key (K) and an ammeter (A) using standard circuit symbols. Use this circuit to show that the same current flows through every part of the circuit. List two precautions you would observe while performing the experiment.

23 State and explain Ohm's law. Define resistance and give its SI unit. What is meant by 1 ohm resistance ? Draw V-I graph for an ohmic conductor and list its two important features.

24 Two wires A and B are of equal length and have equal resistances. If the resistivity of A is more than that of B, which wire is thicker and why ? For the electric circuit given below calculate :



- (i) current in each resistor,
- (ii) total current drawn from the battery, and
- (iii) equivalent resistance of the circuit.

## SECTION B

- 25 A student took 5 ml of lemon juice in each of test tubes A, B and C. She added 5 ml of water in A and 20 ml of water in B. She tested for pH value in all the three tubes. She would find that pH value of liquid :
- (a) in A, B and C is same  
 (b) in A is more than that in B and C  
 (c) in B is more than that in A and C  
 (d) in C is more than that in A and B

- 26 A student was given a solution 'S' which turns blue litmus to red. The expected pH of solution is :

(a) 7                      (b) 6                      (c) 9                      (d) 13

- 27 Barium sulphate is :

(a) insoluble in water                      (b) soluble in water  
 (c) soluble on heating                      (d) sparingly soluble

- 28 To turn a pale green solution of ferrous sulphate to colourless, Radhika put a few zinc granules in it. This is an example of :

(a) Decomposition reaction                      (b) Combination reaction  
 (c) Displacement reaction                      (d) Double displacement reaction

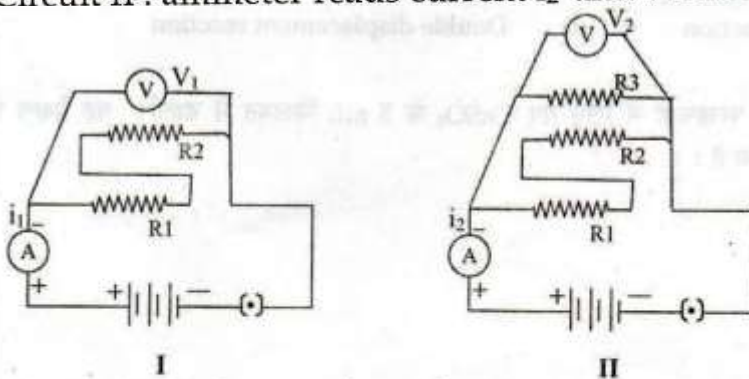
- 29 Soma added a few iron filings to 5 mL of  $\text{CuSO}_4$  solution in a test tube. The change of colour she will observe is :

(a) pale green to blue  
 (b) blue to white  
 (c) blue to pale green  
 (d) pale green to colourless

- 30 Observe the circuits I and II carefully.

Circuit I : ammeter reads current  $i_1$  and voltmeter reads  $v_1$

Circuit II : ammeter reads current  $i_2$  and voltmeter reads  $v_2$

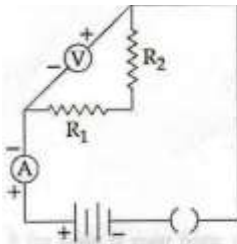


The relationship between the readings is :

(a)  $i_1 > i_2, v_1 = v_2$   
 (b)  $i_1 < i_2, v_1 = v_2$   
 (c)  $i_1 > i_2, v_1 > v_2$   
 (d)  $i_1 < i_2, v_1 < v_2$

- 31 Far carrying out experiment on finding the equivalent resistance of two resistors Connected in parallel, a student sets up his circuit as shown below. The teacher checks it and tells him that his circuit has one or more of the following 'faults'





- (i) The resistors  $R_1$  and  $R_2$  have not been correctly connected in parallel.
- (ii) The Voltmeter has not been correctly connected in the circuit
- (iii) The ammeter and the key have not been correctly connected in the circuit.

Out of these three, the actual fault in his circuit is/are :

- (a) Both a and B
- (b) Both B and C
- (c) Only A
- (d) only B

32 In the experiment to show that 'light is necessary for photosynthesis', if the plant leaf is not destarched, then its covered as well as uncovered part show blue colour in iodine test. The reason for the observation is that :

- (a) Leaf has no starch left
- (b) Leaf has starch left from photosynthesis occurred earlier
- (c) Leaf is only respiring
- (d) Leaf is dead

33 Rathin used boiled seeds in the set - up to demonstrate that  $\text{CO}_2$  is given out during respiration. His observation for the water level in the delivery tube would be :

- (a) Water level in the delivery tube decreases
- (b) Water level in the delivery tube rises
- (c) Water level in the delivery tube does not change
- (d) Water level in the delivery tube depends on how well the seeds are boiled

34 The following chemicals are available in a laboratory :

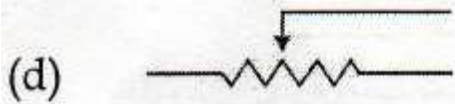
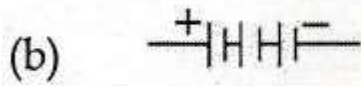
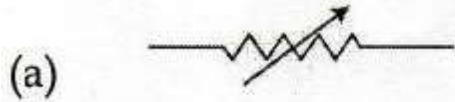
Copper sulphate, Ferrous sulphate, Barium chloride, Sodium sulphate, Quick lime.

Select appropriate chemicals to perform the experiment to study the following reactions :

- (i) Combination
- (ii) Decomposition
- (iii) Displacement
- (iv) Double Displacement

35

Name the following circuit components,



36

In an experiment to prepare temporary mount of a leaf peel a very dark liquid is put on it. What is this liquid called? Name an example of this liquid.