

SAMPLE QUESTION PAPER - 4

Solved _____

Time : 3 Hours

Maximum Marks : 90


General Instructions :

- The question paper comprises of two sections, A and B. You have to attempt both the sections.
- All questions are compulsory.
- All questions of Section A and all questions of Section B are to be attempted separately.
- Question numbers 1 to 3 in Section A are one mark questions. These are to be answered in one word or one sentence.
- Question numbers 4 to 6 in Section A are two marks questions, to be answered in about 30 words.
- Question numbers 7 to 18 in Section A are three marks questions, to be answered in about 50 words.
- Question numbers 19 to 24 in Section A are five marks questions, to be answered in about 70 words.
- 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.

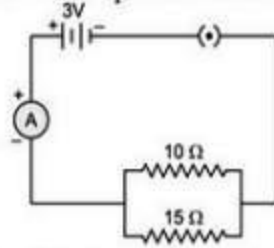
SECTION 'A'

- Name the respiratory pigment in human beings. where is this pigment found ? 1
- State one difference between the wires used in the element of an electric heater and in a fuse wire. 1
- Write the advantage of AC over DC for long distance transmission. 1
- Calculate the resistance of a metal wire of length 2 m and area of cross section $1.55 \times 10^{-6} \text{ m}^2$, if the resistivity of the metal is $2.8 \times 10^{-8} \Omega \text{ m}$? 2
- State reason for the following :
 - Potato chips manufactures fill the packet of chips with nitrogen gas.
 - Iron articles are shining when new, but get coated with a reddish brown powder, when left for some time. 2
- In a test-tube, hydrochloric acid is poured over few zinc granules. List two observations that suggest that a chemical reaction has occurred.

$$2\text{HCl} + \text{Zn} \longrightarrow \text{ZnCl}_2 + \text{H}_2$$
 2
- (a) Mention the four types of information given by an equation.
(b) State the law of conservation of mass as applicable in a chemical reaction. 3

8. Complete and balance the following chemical equations :
- (i) $\text{CaCO}_3 + \text{HCl}$
 - (ii) $\text{Al} + \text{HCl}$
 - (iii) $\text{MnO}_2 + \text{HCl}$ 3
9. When food containing fat or oil is not used and left for a long time, its smell and taste changes. Name the process and state factors responsible for this change. List two methods to prevent or slow down the above change. 3
10. Name the three products of 'chlor-alkali' process. Write one commercially or industrially important material each that can be prepared from each of these products. 3
11. Beaker and water is added slowly to it.
- (i) Will there be any change in temperature of the contents ? Explain.
 - (ii) Name and define the type of reaction taking place.
 - (iii) Write chemical equation for the above reaction. 3
12. Derive the relation for equivalent resistance when three resistance are connected in parallel. 3
13.  3
- (a) What is meant by the statement : The potential difference between two points is 1 volts ?
 - (b) What do the symbols given above represent in a circuit ? Write one function of each. 3
14. State the different ways in which three resistors of R ohm each may be connected in a circuit. In which case is the equivalent resistance of the combination.
- (i) Maximum 3
 - (ii) Minimum.
15. With the help of a schematic flow chart, show the break-down of glucose in a cell to provide energy :
- (i) in the presence of oxygen
 - (ii) in the absence of oxygen
 - (iii) when there is lack of oxygen. 3
16. Explain :
- (a) Blood goes only once through the heart in fishes.
 - (b) Plants have low energy needs.
 - (c) What are capillaries ? 3
17. Energy can neither be created nor be destroyed. In the context of the statement, explain why do we talk about energy crisis. 3
18. You would have seen at the roofs of the minister's house, hospital, hotels, etc. solar panel for electricity and solar heater for hot water are placed. Nowadays most people are preferring these methods. What kind of source of energy is used here ? How it will affect our environment ? 3
19. (i) Explain why is hydrochloric acid a strong acid and acetic acid, a weak acid. How can it be verified ?
 (ii) Explain why aqueous solution of an acid conducts electricity.
 (iii) You have four solutions A, B, and D. The pH of solution A is 6, B is 9, C is 12 and D is 7,
 (a) Identify the most acidic and most basic solutions.
 (b) Arrange the above four solutions in the increasing order of H^+ ion concentration.
 (c) State the change in colour of pH paper on dipping in solution C and D. 5
20. Write balanced chemical equations for the following statements :
- (i) NaOH solutions is heated with zinc granules.
 - (ii) Excess of carbon dioxide gas is passed through lime water.
 - (iii) Dilute sulphuric acid reacts with sodium carbonate.
 - (iv) Egg shells are dropped in hydrochloric acid.
 - (v) Copper (II) oxide reacts with dilute hydrochloric acid. 5
21. Find the equivalent resistance across the two ends A and B of this circuit. 5

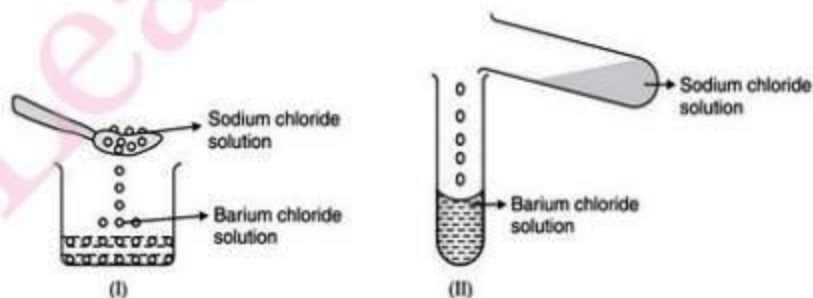
22. Study the following circuit and answer the questions that follow :



- (a) State the type of combination of the two resistors in the circuit.
 - (b) How much current is flowing through :
 - (i) 10 ohm resistor
 - (ii) 15 ohm resistor
 - (c) What is the ammeter reading ?
 - (d) Define SI unit of the current. 5
23. (a) Draw a schematic representation of movement of water in plants during transpiration and explain it. 5
- (b) Explain transport of food and other substances in plants.
- (c) Diffusion will not be sufficient to provide raw materials in leaves and energy in roots in plants. Therefore, a proper system of transpiration is essential. Explain. 5
24. (a) Draw a neat diagram depicting human alimentary canal and label its following parts :
Stomach, Liver, Pancreas, Small intestine
- (b) State in brief the function of digestive enzymes. 5

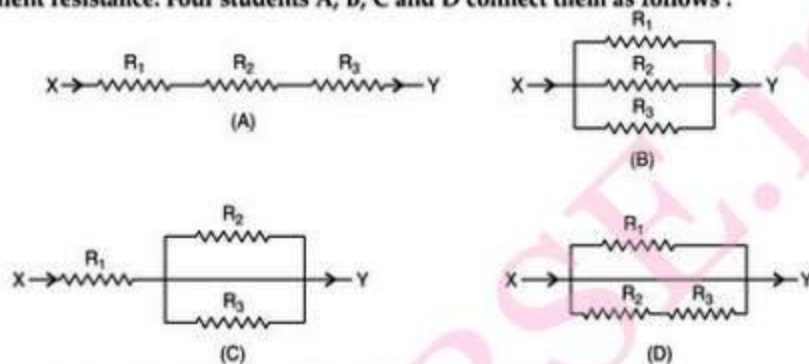
SECTION 'B'

25. A base is a substance that shows the following set of properties : 1
- (A) Sour to taste, produces hydrogen gas when reacted with a metal and changes colour of red litmus to blue.
 - (B) Bitter to taste, produces hydrogen gas when reacted with a metal and changes colour of blue litmus to red.
 - (C) Sour to taste, produces hydrogen gas when reacted with a metal and changes colour of blue litmus to red.
 - (D) Bitter to taste, produces hydrogen gas when reacted with a metal and changes colour of red litmus to blue.
26. The correct experimental set-up to study the reaction between barium chloride and sodium sulphate is : 1



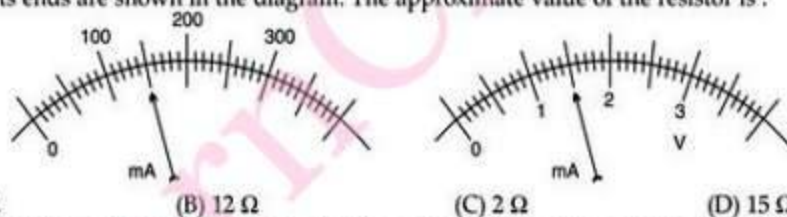
- (A) I
 - (B) II
 - (C) both I and II
 - (D) neither I nor II
27. At very high light intensities, green plant shows : 1
- (A) high rate of photosynthesis
 - (B) low rate of photosynthesis
 - (C) high rate of respiration
 - (D) low rate of respiration
28. The colour of young leaves in some plants is reddish because of : 1
- (A) chlorophyll
 - (B) carotene
 - (C) xanthophylls
 - (D) (A), (B) and (C)

29. In the experiment to show that CO_2 is released during respiration, the solution in the test-tube is : 1
 (A) NaOH (B) KOH (C) NaCl (D) KCl
30. In an ammeter there are 20 divisions between 0 A mark and 0.5 A mark. The least count of the ammeter is : 1
 (A) 0.005 A (B) 0.01 A (C) 0.05 A (D) 0.025 A
31. We use thick copper wires as connecting wires for studying the dependence of current on the potential difference across a resistor. The reason of using thick copper wire is its : 1
 (A) easy availability (B) low cost
 (C) high resistance (D) low resistance
32. Three resistors R_1 , R_2 and R_3 are to be connected in parallel arrangement to determine their equivalent resistance. Four students A, B, C and D connect them as follows :

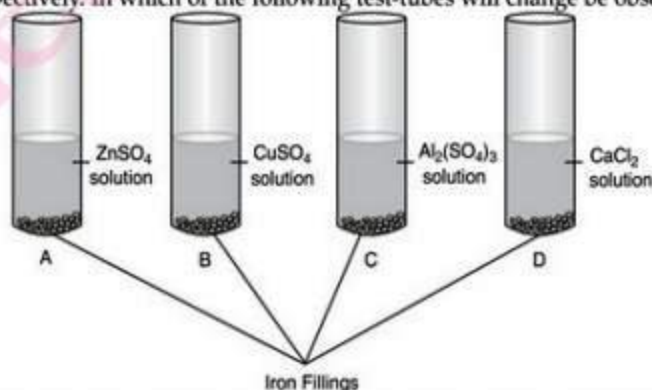


The correct arrangement of the resistors is that of student :

- (A) A (B) B (C) C (D) D 1
33. The current flowing through a resistor connected in a circuit and the potential difference developed across its ends are shown in the diagram. The approximate value of the resistor is : 1



34. If two resistors of value R are connected in series and then in parallel, what is the difference in equivalent resistance in both cases ? 2
35. Iron fillings are put in different test-tubes A, B, C and D containing ZnSO_4 , CuSO_4 , $\text{Al}_2(\text{SO}_4)_3$, CaCl_2 solutions respectively. In which of the following test-tubes will change be observed ? 2



36. What is meant by destarching ? Why do plants get destarched when kept in continuous darkness for about 48 hours ? 2

