

SAMPLE QUESTION PAPER - 3

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. What is a wind energy farm ? 1
2. State the effect on the strength of magnetic field produced at a point near a straight conductor if the electric current flowing through it increases. 1
3. State the observation made by Oersted on the basis of his experiment with current carrying conductors. 1
4. When a current-carrying conductor is kept in a magnetic field, it experiences a force. List the factors on which the direction of this force depends. 2
5. Write the skeletal equation for the following reactions :
 - (i) Hydrogen sulphide reacts with sulphur dioxide to form sulphur and water.
 - (ii) Methane on burning combines with oxygen to produce carbon dioxide and water.What is the need of balance equations ? 2
6. Convert the following statements into balanced chemical equations :
 - (a) Zinc reacts with sulphuric acid to form zinc sulphate and hydrogen gas.
 - (b) Magnesium burns in oxygen to form magnesium oxide. 2

7. Write the chemical equation of the reaction with an example each in which the following change have taken place :
- (i) Change in colour
 - (ii) Change in temperature
 - (iii) Formation of precipitate. 3
8. (a) Explain the formation of ionic compound CaO with electron dot structure. Atomic number of calcium and oxygen are 20 and 8 respectively. 3
- (b) Name the constituent metals of bronze. 3
9. 2 g of lead nitrate powder is taken in a boiling tube. The boiling tube is heated over a flame. Now answer the following :
- (a) State the colour of the fumes evolved and the residue left.
 - (b) Name the type of chemical reaction that has taken place stating its balanced chemical equation. 3
10. Define alloys. List the properties of alloys that makes them useful over pure metals ? Explain these facts with suitable examples. 3
11. In the electrolysis of water :
- (i) Name the gas collected at the cathode and anode respectively.
 - (ii) Why is the volume of one gas collected at one electrode is double than that at the other ? Name this gas.
 - (iii) How will you test the evolved gases ? 3
12. 2 coulomb charge from infinity to point A is 10 joules and in bringing the same charge to some another point B is 20 joules. Find the potential difference between two points A and B. What would be the work done if the same charge is brought directly from A to B ? 3
13. Draw a schematic diagram of a circuit consisting of a battery of five 2 V cells, three resistors of 5 ohm, 10 ohm and 15 ohm respectively, and a plug key all connected in series. Calculate the electric current passing through the above circuit when the key is closed. 3
14. A coil made of insulated copper is connected to a galvanometer. What will happen to the deflection of the galvanometer if this coil is moved towards a stationary bar magnet and then moved away from it ? Give reasons for your answer and name the phenomenon involved. 3
15. Mention three Characteristic features of hormonal secretions in human beings. 3
16. (a) Why do aquatic animals have a faster rate of breathing as compared to terrestrial animals ? 3
- (b) Name the enzyme present in saliva and state its function. 3
17. Aditya suggests his family to install a solar water heater for their residence. But, some of the family members were in favour of installing an electric geyser.
- (a) Who according to you is taking a correct decision ? Mention the value exhibited by Aditya.
 - (b) Also give reasons (at least two) for your answer. 3
18. What is meant by nuclear waste ? State the main hazard of this waste on the living beings. How is this waste disposed off ? 3
19. List in tabular form the two differences between aerobic and anaerobic respiration. Why do we feel cramps in our muscles during sudden physical activity ? 5
20. (a) Draw human excretory system and label the following parts :
- (i) Left kidney
 - (ii) Urethra
 - (iii) Urinary bladder
 - (iv) Vena cava.
- (b) State the purpose of making urine.
- (c) Name any two substances which are selectively reabsorbed from the tubules of a nephron. 5

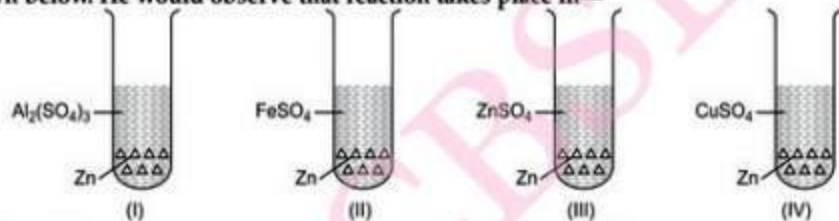
21. (i) (a) What happens chemically when quick lime is added to water?
 (b) Balance the following chemical equation

$$\text{MnO}_2 + \text{HCl} \rightarrow \text{MnCl}_2 + \text{Cl}_2 + \text{H}_2\text{O}$$

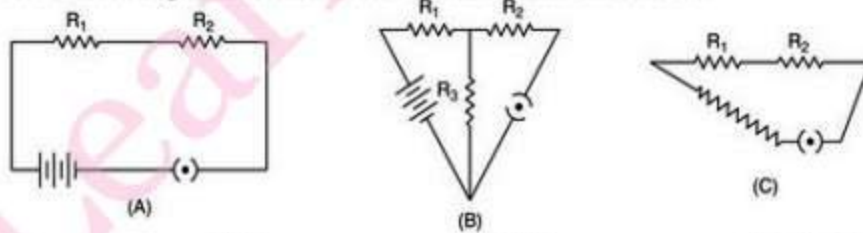
 (c) What is decomposition reaction? Explain it with suitable example. 5
22. Establish a relationship to determine the equivalent resistance R of a combination of three resistors having resistances R_1 , R_2 and R_3 connected in series. Calculate the equivalent resistance of the combination of three resistors of 2Ω , 3Ω and 6Ω joined in parallel. 5
23. Define electromagnetic induction. Describe an activity with the help of a labelled diagram to demonstrate this phenomenon. State the rule to determine the direction of induced current in a conductor. List two factors on which the strength of induced current depends. 5
24. (a) Give reason for the following:
 (i) Ionic compounds have high melting and boiling points.
 (ii) Ionic compounds are soluble in water.
 (iii) Ionic compounds conduct electricity in molten state.
 (b) Show the formation of MgO by transfer of electrons. 5

SECTION 'B'

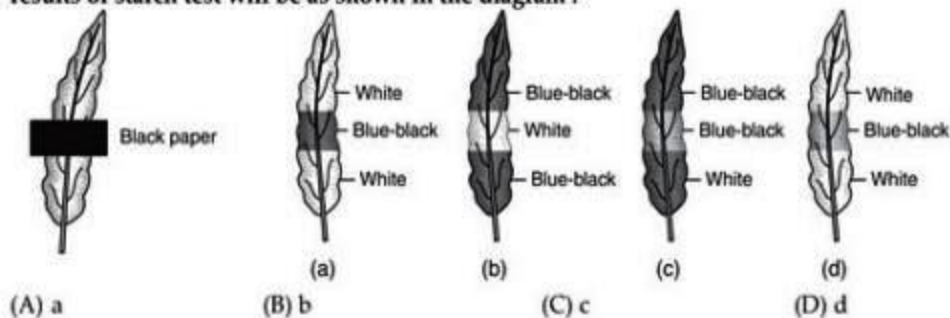
25. Sanjay wanted to test the reactivity of zinc. He put zinc granules in four different solutions as shown below. He would observe that reaction takes place in— 1



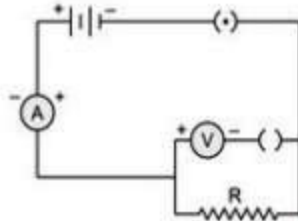
- (A) (i) and (ii) (B) (ii) and (iii)
 (C) (iii) and (iv) (D) (ii) and (iv)
26. A student took sample of liquid Antacid. It will : 1
 (A) turn blue litmus to red (B) turn red litmus to blue
 (C) make no change to the litmus paper (D) turn red litmus to pink
27. Out of the following circuit combinations the one which is in series is : 1



- (A) A (B) B (C) C (D) all of these
28. A leaf from a destarched plant is covered with black paper strip as shown in the figure below. The results of starch test will be as shown in the diagram : 1



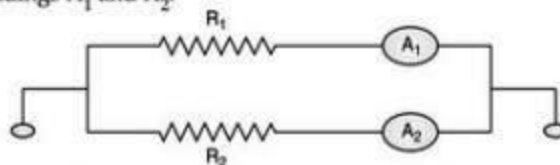
29. In the experiment to show that CO_2 is given out during respiration, the initial level of water in the delivery tube at the end which is immersed in the water of the beaker is : 1
 (A) same as the final level
 (B) more than the final level
 (C) less than the final level
 (D) dependent on the amount of CO_2 in the atmosphere
30. Which of the following is used to transfer leaf peel from watch glass to slide ? 1
 (A) needle (B) forcep (C) blade (D) brush
31. A student arranged an electric circuit as shown below : 1
 He will observe :



- (A) no reading in either ammeter or the voltmeter.
 (B) no reading in voltmeter, but a finite reading in the ammeter.
 (C) no reading in the ammeter, but a finite reading in the voltmeter.
 (D) a finite reading in both the ammeter and the voltmeter.
32. A student was performing an experiment for studying the dependence of the current (I), flowing through a given resistor, on the potential difference (V) applied across it. He wanted to change the value of the current. For doing this, he should change the : 1
 (A) number of cells used (B) resistor itself
 (C) ammeter used in the circuit (D) voltmeter in the circuit
33. The rest position of the needles in a milliammeter and voltmeter when not being used in a circuit are as shown in the figure. The zero-error and the least count of these two instruments are : 1



- (A) $(-4 \text{ mA}, -0.2 \text{ V})$ and $(1 \text{ mA}, 0.1 \text{ V})$ respectively
 (B) $(+4 \text{ mA}, +0.2 \text{ V})$ and $(2 \text{ mA}, 0.2 \text{ V})$ respectively
 (C) $(-4 \text{ mA}, -0.2 \text{ V})$ and $(2 \text{ mA}, 2 \text{ V})$ respectively
 (D) $(+4 \text{ mA}, +0.2 \text{ V})$ and $(1 \text{ mA}, 0.1 \text{ V})$ respectively
34. How is lime water prepared ? 2
35. If the applied voltage (V) across both the resistors R_1 and R_2 is same, but $R_1 > R_2$, what would be true about ammeter readings A_1 and A_2 . 2



36. A part of destarched leaf of a potted plant was covered with black paper strips on both sides and the plant was kept in the sunlight for eight hours. The leaf was then tested with iodine after boiling it in alcohol. Only the uncovered part of the leaf turned blue black. The inference is that _____ . 2