SAMPLE QUESTION PAPER - 9

Self Assessment

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. Name any two sources of direct current. 1
2. State the location and the function of gastric glands. 1
3. State the necessary condition to operate an ocean thermal energy conversion plant. 1
4. Barium chloride reacts with aluminium sulphate to give, aluminium chloride and barium sulphate.
   (i) State the two types in which the above reaction can be classified.
   (ii) Translate the above statement into a chemical equation. 2
5. Name one metal each, which is extracted by :
   (i) Reduction with carbon
   (ii) Electrolytic reduction
   (iii) Reduction with aluminium
   (iv) Reduction with heat alone 2
6. List in a tabular form two differences between a voltmeter and an ammeter. 2

7. Differentiate between an exothermic reaction and an endothermic reaction. Write one example for each one of these reactions in the form of balanced chemical equation. 3

8. Describe electrolytic refining of copper with chemical equations. Draw a well labelled diagram for it. 3

9. A few drops of phenolphthalein and blue litmus were added to each of the three solutions listed below. Specify the colour change in each case, if any : 3

Name of the solution	Colour change with phenolphthalein	Colour change with blue litmus
1. Sodium carbonate		
2. Hydrochloric acid		
3. Sodium chloride		

10. Select (i) combination reaction (ii) decomposition reaction and (iii) displacement reaction from the following chemical equations :

(i) $ZnCO_3(s) \longrightarrow ZnO(s) + CO_2(g)$

(ii) $Pb(s) + CuCl_2(aq) \longrightarrow PbCl_2(aq) + Cu(s)$

(iii) $NaBr(aq) + AgNO_3(aq) \longrightarrow AgBr(s) + NaNO_3(aq)$

(iv) $H_2(g) + Cl(g) \longrightarrow 2HCl(g)$

(v) $Fe_2O_3(g) + 2Al \longrightarrow Al_2O_3 + 2Fe(s)$

(vi) $3H_2(g) + N_2(g) \longrightarrow 2NH_3(g)$ 3

11. Two wires made of copper and nichrome have equal lengths and equal resistances. Which is thicker ? The resistivity of nichrome is greater than resistivity of copper. Why are alloys commonly used in electrical heating devices such as electric toasters and electric iron ? 3

12. Name two electrical appliances of daily use in which electric motor is used. Name and state the principle on which an electric motor works. 3

13. State and explain Fleming's right hand rule for the direction of induced current. 3

14. Name three different glands associated with the digestive system in humans. Also name their secretions. 3

15. With the help of schematic diagram (flow chart) trace the sequence of events occuring, when you step on a hot object. 3

16. List three advantages of using solar cells. 3

17. Out of two elements A and B with mass number 2 and 235 respectively, which one is suitable for making :

(a) a nuclear reactor (b) a hydrogen bomb.

Name the nuclear reaction involved in each case. Write the difference between the two types of nuclear reactions. 3

18. There are many chemical changes taking place in our daily life. The milk turns sour, when it is placed for a long time at room temperature. Rusting of iron, melting of candle wax, all are examples of chemical changes. All these chemical changes occur due to chemical reactions, which changes the nature and the properties of the substances involved in these reactions. Some chemical reactions are beneficial, but some are harmful.

(i) "Many combustion reactions are combination reactions." Justify the statement by giving any two examples.

(ii) 'Should we use fire cracker during Diwali ?' Comment on the statement by giving two valid reasons. 3

19. Compose an activity to arrange Ca, Mg and Fe metals in the decreasing order of reactivity with water. Write suitable balanced chemical equation and draw diagrams. 5

20. (a) Five solutions A, B, C, D and E when tested with universal indicator showed pH as 4, 1, 11, 7 and 9 respectively. Which solutions is :
    (i) Neutral
    (ii) Strongly alkaline
    (iii) Strongly acidic
    (iv) Weakly acidic
    (v) Weakly alkaline
    Arrange the solutions in increasing order of H^+ ion concentration.
    (b) Name the acid and base from which the follwoing salts have been formed.
    (i) Sodium acetate
    (ii) Ammonium chloride 5

21. What are magnetic field lines ? List three characteristics of these lines. Describe in brief an activity to study the magnetic field lines due to a current flowing in a circular coil. 5

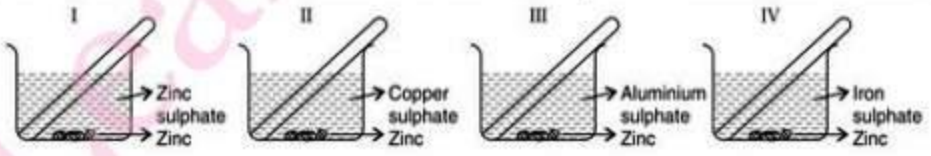
22. (a) A stationary charge is placed in a magnetic field. Will it experience a force ? Give reason to justify your answer.
    (b) On what factors does the direction of force experienced by a conductor when placed in a magnetic field depend ?
    (c) Under what condition is the force experienced by a current-carrying conductor placed in a uniform magnetic field maximum ?
    (d) Name and state the rule that gives the direction of force experienced by a current- carrying conductor placed in a magnetic field. 5

23. (a) Write two differences between autotrophic and heterotrophic nutrition.
    (b) How are fats digested in our body ? Where does this take place ? 5

24. (a) Draw a diagram of an excretory unit of a human kidney and label the following :
    Bowman's capsule, Glomerulus, Collecting duct, Renal artery,
    (b) Write the important function of the structural and functional unit of kidney.
    (c) Write any one function on an Artificial kidney. 5

SECTION 'B'

25. **Zinc granules were added to zinc sulphate, copper sulphate, aluminium sulphate and iron sulphate solutions as shown below. A student would observe the deposition of metal on zinc in beakers :1**



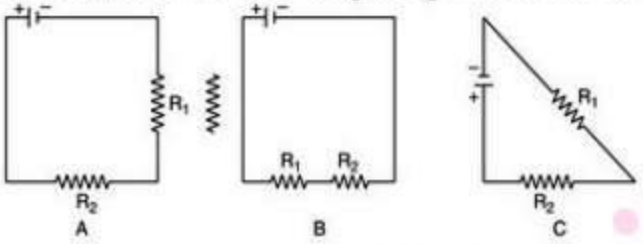
(A) I and III
(B) I and IV
(C) II and III
(D) II and IV

26. **When some aluminium powder is added to the solutions of copper sulphate and ferrous sulphate, it is observed after some time that :** 1
(A) Both solutions become colourless.
(B) The colour of copper sulphate solution fades while that of ferrous sulphate solution does not.
(C) Both the solutions retain their colour.
(D) Only ferrous sulphate solution changes its colour.

27. **While performing the experiment "to study the dependence of current flowing through a resistor on the potential difference across its ends" if a student keeps the circuit 'ON' for a long time to measure the current and voltage, the :** 1

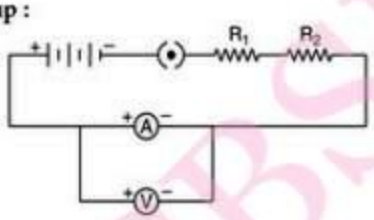
(A) ammeter's zero error will change
(B) potential difference of the cell will change
(C) voltmeter will start giving wrong readings
(D) resistor will get heated upto change in the values of its resistance

28. In which of the following circuits are resistors R_1 and R_2 connected in series ? 1



(A) only A
(B) only B
(C) only C
(D) A, B and C

29. To determine the equivalent resistance of a series combination of two resistors R_1 and R_2, a student arranges the following set-up : 1



Which of the following statements will be true for this circuit ?
(A) Incorrect reading for current I as well as potential difference V
(B) Correct reading for I, but incorrect reading for V
(C) Incorrect reading for I, but correct reading for V
(D) Correct reading for both I and V

30. While performing the experiment "to study the dependence of current on the potential difference across a resistor", three students X, Y and Z connect the ammeter (A), the battery (B), the key (K) and the resistor (R) in series in the following three different orders : 1

X → B, K, R, A, B
Y → B, A, K, R, B
Z → B, R, K, A, B

Who has connected them in the correct order ?
(A) X
(B) Y
(C) Z
(D) All

31. On observing stomata on epidermal peel of a leaf, some stomata were found open and some were found closed. The guard cells will be : 1

(A) flattened in open stomata, but bulged in closed stomata
(B) bulged in open stomata and flattened in closed stomata
(C) flattened in both open and closed stomata
(D) bulged in both open and closed stomata

32. The steps taken for setting up an experiment to demonstrate that light is necessary for photosynthesis were as follows : 1

- A strip of black paper was clipped on the leaf of a potted plant.
- The plant was kept in the Sun for four hours.

- The strip was removed and the leaf was placed in boiling alcohol in a water bath.
- The leaf was washed and tested for strach.

The result was not as expected. Identify the step which had been missed out.

(A) The plant was kept in the dark for 24 hours before starting the experiment.
(B) The leaf was boiled in water after placing it in boiling alcohol.
(C) The leaf was sprinkled with water before placing the black paper strip.
(D) A transparent strip was also used to protect the black paper strip from rains etc.

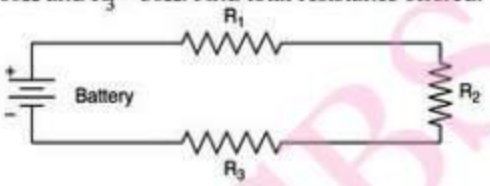
33. **A student focussed the leaf epidermal peel under the low power of microscope, but could not see all the parts. He should :** 1

(A) Use the coarse adjustment knob again to focus the slide.
(B) Use the fine adjustment knob to increase magnification.
(C) Focus under high power using coarse adjustment knob.
(D) Focus under high power using fine adjustment knob.

34. Why is KOH solution kept in the test-tube inside the airtight conical flask while doing the experiment of respiration of seeds ? 2

35. What is the theory behind the chemical reaction of an iron nail with aqueous copper sulphate solution ? 2

36. If $R_1 = 30\Omega$, $R_2 = 60\Omega$ and $R_3 = 30\Omega$. Find total resistance offered. 2



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