PT -1 EXAMINATION

Time – 1h 20 min **SUBJECT – Chemistry (Class - 10th)** **M.M.= 20**

General Instructions: All questions are compulsory.

Q1. Multiple Choice Questions - **3 marks**

(i) Consider the following chemical equation: $pAl + qH_2O \longrightarrow rAl_2O_3 + sH_2$

To balance the chemical equation, the value of p, q, r and s must be respectively.

(i) 3, 2, 2, 1. (ii) 2, 3, 3, 1 (iii) 2, 3, 1, 3, (iv) 3, 1, 2, 2

(ii) A student took sodium sulphate solution in a test tube and added barium chloride solution to it. He observed that an insoluble substance has formed. The colour and molecular of the insoluble substance is

(i) grey, $BaSO_4$ (ii) Yellow, $Ba(SO_4)_2$ (iii) White, $BaSO_4$ (iv) Pink, $BaSO_4$

(iii) An aqueous solution A turns phenolphthalein solution pink. When another aqueous solution B is added to pink solution, the pink colour disappears. Now when a few drops of solution A are added to this reaction, the mixture appears pink again. The respective changes in the nature of the solution are from-

(i) acidic ⟶ basic ⟶ basic (ii) basic ⟶ acidic ⟶ acidic

(iii) acidic ⟶ basic ⟶ acidic (iv) basic ⟶ acidic ⟶ basic

(iv) Consider the following compounds

i. HCL **ii. C_2H_5OH** **iii. $C_6H_{12}O_6$** **iv. H_2SO_4**

Which of these compounds do not conduct electricity in the solution.

(a) I and II only (b) II and III only

(iii) III and IV only (iv) I and IV only.

(v) The acid present in nettle sting is

(i) acetic acid (ii) methanoic acid

(iii) tartaric acid (iv) citric acid

(vi) A Visually challenged student, has to perform a lab test to detect the presence of acid in a given solution. The acid- base indicator preferred by him will be

(i) blue Litmus (ii) Onion Clove oil (iii) Red cabbage plant (iv) Hibiscus extract

Q2. ASSERTION AND REASON BASED QUESTIONS- **(2 MARKS)**

1. Assertion (A) - silver salts are used in black and white photography.

Reason (R) - Silver salts do not decompose in the presence of light.

(a) both A and R are true and R is correct explanation of A.

(B) Both A and R are true but R is not the correct explanation of A.

(c) A is true, But R is false. (d) A is false, but R is true.

2. Assertion (A): Reaction of quick lime with water is an exothermic reaction.

Reason (R) : Quick lime reacts vigorously with water releasing a large amount of heat.

Select the most appropriate option for this from above options

Note- Q3 to Q5 are very short answer questions carry 1 mark each.

Q3. How is the concentration of Hydronium ion affected when a solution of an acid is diluted.

Q4. Differentiate between Exothermic and endothermic reaction. Give example

Q5. A shiny brown coloured element X on heating in air becomes black in colour. Name the element X and the black colored Compound formed.

Note - Q6 to 7are very short answer questions carry 2 marks each.

Q6. A shiny metal M on burning gives a dazzling white flame and changes to a white powder N.

(a) Identify M and N and represent the above reaction in form of balanced chemical equation.
(b) Does M undergo oxidation or reduction in this reaction? Justify.

Q7. Dry HCL gas does not change the colour of dry litmus paper. Why?

Note – Q8 is short answer type question carry 3 marks

8. Design an experimental setup to demonstrate the "Alcohol and Glucose contain hydrogen but are not categorised as acid". Also give reason to justify this fact.

Or

Q9 Explain the following terms (i) Oxidation (ii) Reduction.

By giving suitable example also identify the reducing and oxidising agent in the examples.

Case study base type question (4 marks)

Oxidation has damaging effect on metals as well as on food. The damaging effect of oxidation on metal is studied as corrosion and that on food is studied as rancidity. The phenomenon due to which metals are slowly eaten away by the reaction of air, water and chemicals present in atmosphere , is called Corrosion. For example, iron articles are shiny when new, but get coated with a reddish brown powder when left for sometime. This process is known as rusting of iron. Rancidity is the process of slow oxidation of oil and fat (which are volatile in nature) present in the food materials resulting in the change of smell and taste in them.

Based on above paragraph answer the following question.

1. Rancidity can be prevented by
(a) Adding antioxidants. (b) packing oily food in nitrogen gas

(C) Both a and b. (d) none of these

2. Combination of phosphorus and oxygen is an example of

(a) Oxidation. (b) Reduction. (C) decomposition (d) none of these

3)A science teacher wrote the following statements about Rancidity :

a. When fats and oil are reduced, they become rancid.
b. In chips packet, rancidity is prevented by oxygen
c. Rancidity is prevented by Adding antioxidants.

Select the correct option.

(a) I only. (B) II and III only. (C) III only. (D) I, II, III only

4. Which of the following measures can be adopted to prevent or slow down Rancidity?

a. Food materials should be packed in air tight container.

b. Food should be refrigerated

c. Food materials and cooked food should be kept away from direct sunlight.

(i) only II and III. (ii) Only I and III

(iii) only I and II. (iii) I, II, III.