

**First Mid term Test**

**Std : XI**

**Marks : 25**

**Subject : Chemistry**

**Time : 1 hrs**

**PART - I**

**Choose the best answer :**

**5 × 1 = 5**

- 1) The equivalent mass of a trivalent metal element is  $9 \text{ g eq}^{-1}$ , the molar mass of its anhydrous oxide is \_\_\_\_\_  
a) 102 g            b) 27 g            c) 270 g            d) 78 g
- 2) Total number of electrons present in 1.7 g of ammonia is  
a)  $6.022 \times 10^{23}$     b)  $6.022 \times 10^{22} / 1.7$     c)  $6.022 \times 10^{24} / 1.7$     d)  $6.022 \times 10^{23} / 1.7$
- 3) The equivalent mass of potassium permanganate in alkaline medium is  
a) 31.6            b) 52.7            c) 79            d) none of these
- 4) The oxidation state of C in  $\text{CH}_2 \text{F}_2$  is  
a) +1            b) -1            c) -2            d) 0
- 5) Which of the following reaction represents reduction, according to classical concept ?  
a)  $4 \text{Fe} + 3\text{O}_2 \longrightarrow 2 \text{Fe}_2\text{O}_3$             b)  $\text{H}_2\text{S} + \text{Cl}_2 \longrightarrow 2\text{HCl} + \text{S}$   
c)  $\text{Fe}^{2+} \longrightarrow \text{Fe}^{3+} + \text{e}^-$             d)  $\text{CuO} + \text{C} \longrightarrow \text{Cu} + \text{CO}$

**PART - II**

**Answer any 3 questions :**

**3 × 2 = 6**

- 6) What is the empirical formula of  
i) Fructose (  $\text{C}_6 \text{H}_{12} \text{O}_6$  )  
ii) Caffeine (  $\text{C}_8 \text{H}_{10} \text{N}_4 \text{O}_2$  )
- 7) What do you understand by the term mole ?
- 8) What are limiting reagents ?
- 9) Calculate the gram equivalent mass of  $\text{KMnO}_4$ .

### PART - III

**Answer any 3 questions : Q.NO. 13 is compulsory**

**3 × 3 = 9**

- 10) A compound on analysis gave the following percentage composition  
C = 54.55 % H = 9.09 % O = 36.36 % Determine the empirical formula of the compound.
- 11) Distinguish b/w oxidation and reduction
- 12) The balanced equation for a reaction is given below  
$$2x + 3y \longrightarrow 4l + m$$
When 8 moles of x reacts with 15 moles of y , then  
i) which is the limiting reagent ?  
ii) calculate the amount of products formed ?
- 13) Balance the following equation using oxidation number method .  
$$\text{As}_2 \text{S}_3 + \text{HNO}_3 + \text{H}_2\text{O} \longrightarrow \text{H}_3\text{AsO}_4 + \text{H}_2\text{SO}_4 + \text{NO}$$

### PART - IV

**Answer Any 1 of the following :**

**1 × 5 = 5**

- 14) a) Balance the following equation by ion electron method.  
$$\text{KMnO}_4 + \text{FeSO}_4 + \text{H}_2\text{SO}_4 \longrightarrow \text{MnSO}_4 + \text{Fe}_2(\text{SO}_4)_3 + \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$$
- (or)
- b) A compound on analysis gave Na = 14.31% S= 9.97 % H = 6.22% and O = 69.5 %. Calculate the molecular formula of the compound if all the hydrogen in the compound is present in combination with oxygen as water of crystallization. ( Molecular mass is 322 ).
- 15) a) In a reaction  $x+y+z_2 \longrightarrow xyz_2$ , identify the limiting reagent if any, in the following reaction mixtures.
- a) 200 atoms of x + 200 atoms of y + 50 molecules of  $z_2$
- b) 1 mole of x + 1 mole of y + 3 mole of  $z_2$
- c) 50 atoms of x + 25 atoms of y + 50 molecules of  $z_2$
- d) 2.5 mole of x + 5 mole of y + 5 mole of  $z_2$

(or)

- (b) Balance the following equations by oxidation number method.

