

## SECTION 'A'

## MULTIPLE CHOICE QUESTIONS (33 Marks)

Note: i) This section consists of 33 part questions and all are to be answered. Each question carries ONE marks.

- Q.1 Choose the correct answer for each from the given options:
- (1)  $3.01 \times 10^{23}$  molecules of oxygen gas at STP occupy a volume of:  
 ☆  $22.4 \text{ dm}^3$  ☆  $224 \text{ dm}^3$  ☆  $11.2 \text{ dm}^3$  ☆  $2.24 \text{ dm}^3$
- (2) 602.10 has significant figures:  
 ☆ 3 ☆ 4 ☆ 5 ☆ 6
- (3) One mole of  $\text{H}_2\text{O}$  contains this number of Hydrogen atoms:  
 ☆  $6.02 \times 10^{23}$  ☆  $1.204 \times 10^{24}$   
 ☆  $3.01 \times 10^{23}$  ☆  $1.204 \times 10^{23}$
- (4) The number of molecules in this pair are same:  
 ☆  $10\text{gm H}_2$  and  $10\text{gm CH}_4$  ☆  $10\text{gm H}_2$  and  $50\text{gm CH}_4$   
 ☆  $10\text{gm H}_2$  and  $80\text{gm CH}_4$  ☆  $10\text{gm H}_2$  and  $16\text{gm CH}_4$
- (5) The vapour pressure of water at  $100^\circ\text{C}$  will be:  
 ☆ 760 torr ☆ 76 torr ☆ 14.2 psi ☆ 100 torr
- (6) Number of crystal system on the basis of unit cell is:  
 ☆ 5 ☆ 6 ☆ 7 ☆ 8
- (7) Capillary action in liquids is due to:  
 ☆ Viscosity ☆ Surface Tension  
 ☆ Density ☆ Fluidity
- (8) The rate of diffusion of  $\text{CO}_2$  is equal to:  
 ☆  $\text{CH}_4$  ☆  $\text{CO}$  ☆  $\text{SO}_2$  ☆  $\text{C}_3\text{H}_8$
- (9) The  $(n + l)$  value for 5d orbital is:  
 ☆ 4 ☆ 5 ☆ 6 ☆ 7
- (10) By emitting  $\alpha$ -particles  ${}_{92}\text{U}^{238}$  converts into:  
 ☆  ${}_{82}\text{Pb}^{214}$  ☆  ${}_{84}\text{Po}^{210}$  ☆  ${}_{80}\text{Ac}^{227}$  ☆  ${}_{90}\text{Th}^{234}$
- (11) The maximum number of electrons in a particular sub-energy level is:  
 ☆  $2n^2$  ☆  $n^2$  ☆  $(2l + 1)$  ☆  $2(2l + 1)$
- (12)  $e/m$  value is minimum for positive rays when discharge tube contains:  
 ☆ Hydrogen ☆ Helium ☆ Nitrogen ☆ Oxygen
- (13) The bond energy of this molecule is maximum  
 ☆  $\text{CH}_4$  ☆  $\text{O}_2$  ☆  $\text{N}_2$  ☆  $\text{Cl}_2$
- (14) This molecule has the maximum bond angle:  
 ☆  $\text{NH}_3$  ☆  $\text{CO}_2$  ☆  $\text{SO}_2$  ☆  $\text{H}_2\text{O}$
- (15) This hydrogen halide has the highest percentage of ionic character:  
 ☆ HF ☆ HCl ☆ HBr ☆ HI
- (16) This molecule has zero dipole moment:  
 ☆  $\text{NH}_3$  ☆  $\text{CO}_2$  ☆  $\text{H}_2\text{O}$  ☆ HCl
- (17) This is an intensive property:  
 ☆ Density ☆ Mass ☆ Mole ☆ Volume
- (18) 1 Cal is equal to:  
 ☆ 0.239 J ☆ 1.98 J ☆ 4.184 J ☆ 8.314 J
- (19) This colour has the shortest wavelength:  
 ☆ Red ☆ Blue ☆ Violet ☆ Orange
- (20) 400 J of heat is supplied to a system at constant volume, the change in internal energy is:  
 ☆ 400 J ☆ -400 J ☆ 300 J ☆ 200 J
- (21) For the reaction  $2\text{NH}_3 \rightleftharpoons \text{N}_2 + 3\text{H}_2$  the relation between  $K_c$  and  $K_p$  is:  
 ☆  $K_p = K_c$  ☆  $K_p > K_c$  ☆  $K_p < K_c$  ☆  $K_p < K_c$
- (22) The extent reaction will be maximum for the  $K_c$  value:  
 ☆  $10^{-3}$  ☆ 0.1 ☆ 10 ☆  $10^3$
- (23) In an exothermic reaction increase of temperature favours:  
 ☆ Forward Reaction ☆ Reverse Reaction  
 ☆ to remain in equilibrium ☆ Irreversible Reaction
- (24) Precipitation occur if the product of ionic concentration is:  
 ☆ greater than  $K_{sp}$  ☆ less than  $K_{sp}$   
 ☆ equal to  $K_{sp}$  ☆ equal to  $K_c$
- (25) When 2 moles of solute are present in  $2\text{dm}^3$  of solution, then concentration of solution is:  
 ☆ 0.5M ☆ 1M ☆ 2M ☆ 3M
- (26) This one has the highest pH value:  
 ☆ 0.01 M NaOH ☆ 0.02M HCl  
 ☆ 0.01M  $\text{NaHCO}_3$  ☆ 0.1M  $\text{H}_2\text{SO}_4$
- (27) The oxidation number of Cr in  $\text{Cr}_2\text{O}_7^{2-}$  is:  
 ☆ +2 ☆ +4 ☆ +6 ☆ +7
- (28) Universal indicator in acid gives this colour:  
 ☆ Green ☆ Yellow ☆ Pink ☆ Red
- (29) Human body is an example of:  
 ☆ Open System ☆ Closed System  
 ☆ Isolated System ☆ Isochoric System
- (30) The reaction  $2\text{NO}_2 \rightarrow 2\text{NO} + \text{O}_2$  has order:  
 ☆ Zero ☆ 1st ☆ 2nd ☆ 3rd
- (31) These reactions have low value of activation energy:  
 ☆ Slow ☆ Fast ☆ Moderate ☆ Ionic
- (32) The change in concentration of reacting substance in a unit time is called:  
 ☆ Rate of Reaction ☆ Rate Constant  
 ☆ Rate Law ☆ Specific Rate Constant
- (33) The threshold energy of a chemical reactions is 31 KJ/mole and the average internal energy of the reactant is 12 KJ/mole the activation energy will be:  
 ☆ 55 KJ/mole ☆ 43 KJ/mole  
 ☆ 25 KJ/mole ☆ 19 KJ/mole