

1125 Warning:- Please write your Roll No. in the space provided and sign. Roll No.-----

( Inter Part – I )

(Session 2019-21 to 2022-24)

Sig. of Student -----

Chemistry (Objective)

( Group - II )

Paper (I)

Time Allowed:- 20 minutes

PAPER CODE 2488

Maximum Marks:- 17

Note:- You have four choices for each objective type question as A, B, C and D. The choice which you think is correct; fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question. Write PAPER CODE, which is printed on this question paper, on the both sides of the Answer Sheet and fill bubbles accordingly, otherwise the student will be responsible for the situation. Use of Ink Remover or white correcting fluid is not allowed.

SGD-11-672-P1

Q. 1

- 1) Which of the following has hydrogen bonding?  
(A)  $\text{CH}_4$  (B)  $\text{CCl}_4$  (C)  $\text{NH}_3$  (D)  $\text{SiH}_4$
- 2) The electron affinity of chlorine is.  
(A)  $-349 \text{ kJ mol}^{-1}$  (B)  $-249 \text{ kJ mol}^{-1}$  (C)  $-449 \text{ kJ mol}^{-1}$  (D)  $+396 \text{ kJ mol}^{-1}$
- 3) Acid having  $K_a > 1$  will be .  
(A) Weak (B) Very weak (C) Moderate (D) Strong
- 4) 18 g glucose is dissolved in 90 g of water. The relative lowering of vapour pressure is equal to  
(A)  $\frac{1}{5}$  (B) 5.1 (C)  $\frac{1}{51}$  (D) 6
- 5) Orbitals having same energy are called:  
(A) unhybrid orbitals (B) valence orbitals (C) degenerate orbitals (D) d-orbitals
- 6) The volume of 1.6g of  $\text{CH}_4$  at S.T.P is  
(A)  $1.12 \text{ dm}^3$  (B)  $2.24 \text{ dm}^3$  (C)  $22.41 \text{ dm}^3$  (D)  $112 \text{ dm}^3$
- 7) Partial pressure of oxygen in air at sea level is.  
(A) 149 torr (B) 154 torr (C) 159 torr (D) 164 torr
- 8) In silver oxide battery, the cathode is made up of:  
(A)  $\text{AgO}$  (B)  $\text{Ag}_2\text{O}$  (C)  $\text{Ag}_2\text{O}_3$  (D)  $\text{Ag}$
- 9) For the reaction  $\text{NaOH} + \text{HCl} \rightarrow \text{NaCl} + \text{H}_2\text{O}$  the change in enthalpy is called:  
(A) Heat of reaction (B) Heat of formation (C) Heat of neutralization (D) Heat of combustion
- 10) Stronger the oxidizing agent, greater is the:  
(A) oxidation potential (B) reduction potential (C) redox potential (D) E.M.F of cell
- 11) The rate of reaction.  
(A) increases as the reaction proceeds (B) decreases as the reaction proceeds (C) remains the same as the reaction proceeds (D) may decrease or increase as the reaction proceeds
- 12) The largest number of molecules are present in:  
(A) 3.6 g of  $\text{H}_2\text{O}$  (B) 4.8 g of  $\text{C}_2\text{H}_5\text{OH}$  (C) 2.8 g of  $\text{CO}$  (D) 5.4 g of  $\text{N}_2\text{O}_5$
- 13) Solvent extraction method is a particularly useful technique for separation when the product to be separated is.  
(A) non-volatile or thermally unstable (B) volatile or thermally stable (C) non-volatile or thermally stable (D) volatile or thermally unstable
- 14) The order of the rate of diffusion of gases  $\text{NH}_3$ ,  $\text{SO}_2$ ,  $\text{Cl}_2$  and  $\text{CO}_2$  is:  
(A)  $\text{NH}_3 > \text{SO}_2 > \text{Cl}_2 > \text{CO}_2$  (B)  $\text{NH}_3 > \text{CO}_2 > \text{SO}_2 > \text{Cl}_2$  (C)  $\text{Cl}_2 > \text{SO}_2 > \text{CO}_2 > \text{NH}_3$  (D)  $\text{NH}_3 > \text{CO}_2 > \text{Cl}_2 > \text{SO}_2$
- 15) In order to raise the boiling point of water upto  $110^\circ\text{C}$ , the external pressure should be  
(A) between 760 torr and 1200 torr (B) between 200 torr and 760 torr (C) 765 torr (D) any value of pressure
- 16) Which of the following molecules has zero dipole moment?  
(A)  $\text{NH}_3$  (B)  $\text{CHCl}_3$  (C)  $\text{H}_2\text{O}$  (D)  $\text{BF}_3$
- 17) The pH of  $10^{-3} \text{ mol dm}^{-3}$  of an aqueous solution of  $\text{H}_2\text{SO}_4$  is  
(A) 3.0 (B) 2.7 (C) 2.0 (D) 1.5

1125 -- 1123 -- 15000 (4)

1123 (Inter Part - I) Warning:- Please, do not write anything on this question paper except your Roll No.  
Chemistry (Subjective) (Session 2019-21 to 2022-24) Group (II) Paper (I)

Time Allowed: 2.40 hours Section ----- I Maximum Marks: 68

2. Answer briefly any Eight parts from the followings:-

8 × 2 = 16

- (i) Define gram atomic mass and gram molecular mass. (ii) Define molecular ion. Give one example.
- (iii) Mg atom is twice heavier than that of carbon atom. Give reason.
- (iv) State Graham's Law of diffusion. Write its mathematical form.
- (v) How the process of respiration obeys the Dalton's law of partial pressure.
- (vi) Give verification of Boyle's law from kinetic molecular theory of gases.
- (vii) Why e/m value of cathode rays is just-equal to that of electron.
- (viii) State Moseley's law. Give its Mathematical expression.
- (ix) What is orbital? Draw the shape of p-orbital. (x) Define Enthalpy of Atomization. Give one example.
- (xi) What are spontaneous and non-spontaneous processes. Give one example for each.
- (xii) State Hess's law of constant heat summation. Write its mathematical form.

3. Answer briefly any Eight parts from the followings:-

8 × 2 = 16

- (i) Define sublimation giving two examples.
- (ii) Give salient features of a solvent used in process of crystalization.
- (iii) Describe most safe and reliable method for drying of crystals.
- (iv) Why melting point and boiling point of halogens increases down the group.
- (v) Lower alcohols are soluble in water while hydrocarbons are insoluble. Give reason.
- (vi) Cleavage of crystals is anisotropic property. Explain.
- (vii) Why aqueous solution of  $\text{NH}_4\text{Cl}$  is acidic in nature.
- (viii) Define solubility with two examples. (ix) Why  $\text{NaCl}$  and  $\text{KNO}_3$  are used to lower melting point of ice.
- (x) Define the term energy of activation. (xi) A catalyst is specific in its action. Justify it.
- (xii) Rate of reaction decreases with passage of time. Justify it.

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4. Answer briefly any Six parts from the followings:-

6 × 2 = 12

- (i) Define electronegativity. How does it vary in the group of periodic table?
- (ii)  $\text{Pi} (\pi)$  bonds are more diffused than sigma bonds. Give the reason.
- (iii) Define coordinate covalent bond. Give an example.
- (iv) How can we prepare basic buffers? Give an example.
- (v) Calculate the pH of  $10^{-4}$  mole  $\text{dm}^{-3}$  of  $\text{Ba}(\text{OH})_2$ . (vi) Give two applications of common ion effect.
- (vii) What is standard hydrogen electrode (SHE)?
- (viii) Give the electrode reactions during the recharging of lead accumulator.
- (ix) Calculate the oxidation number of Cr in  $\text{Cr}_2(\text{SO}_4)_3$  and  $\text{Cr}_2\text{O}_7^{2-}$

Section ----- II Note: Attempt any three questions.

(8 × 3 = 24)

5. (a) Explain evidence of atoms with the help of diagram.

(b)  $250 \text{ cm}^3$  of hydrogen is cooled from  $127^\circ\text{C}$  to  $-27^\circ\text{C}$  by maintaining the pressure constant. Calculate the new volume of the gas at Low temperature.

6. (a) Explain molecular solids in detail.

(b) State and explain Hess's law of constant Heat summation with two examples.

7. (a) Write down any four properties of cathode rays.

(b) What is the percentage ionization of acetic acid in a solution in which 0.1 Mole of it has been dissolved per  $\text{dm}^3$  of the solution.

8. (a) Explain paramagnetic nature of oxygen on the basis of MOT.

(b) Describe the construction and working of standard hydrogen electrode (SHE).

9. (a) Explain phenol-water system in detail.

(b) Write down any four characteristics of catalyst.

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