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

(Inter Part – I) (Session 2015-17 to 2018-20) Sig. of Student ----------

emistry (Objective) (Group - II) Paper (I)

.ime Allowed:- 20 minutes **PAPER CODE 2482** 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.

Q. 1

1) One mole of SO_2 contains;
(A) 6.02×10^{23} atoms of oxygen (B) 18.1×10^{23} molecules of SO_2 (C) 6.02×10^{23} atoms of sulphur (D) 4 gram atoms of SO_2

2) The mass of one mole of electrons are
(A) 1.008 mg (B) 0.55 mg (C) 0.184 mg (D) 1.673 mg

3) The comparative rates at which the solutes move in paper chromatography depend on
(A) The size of paper (B) R_f values of solutes (C) Temperature of the experiment (D) Size of the chromatographic tank

4) Pressure remaining constant, at which temperature the volume of a gas will becomes twice of what it is at $0\,^{\circ}C$.
(A) $546\,^{\circ}C$ (B) $200\,^{\circ}C$ (C) 546 K (D) 273 K

5) Number of molecules in one dm^3 of water is close to
(A) $\frac{6.02}{22.4}\times10^{23}$ (B) $\frac{12.04}{22.4}\times10^{23}$ (C) $\frac{18}{22.4}\times10^{23}$ (D) $55.6\times6.02\times10^{23}$

6) When water freezes at $0\,^{\circ}C$, its density decreases due to
(A) Cubic structure of ice (B) Empty spaces present in the structure of ice (C) Change in bond lengths (D) Change of bond angles

7) Diamond is a bad conductor because
(A) It has a tight structure (B) It has a high density (C) There are no free electron present in the crystal of [illegible] to conduct el[illegible] (D) [illegible]nsparent to

8) Orbitals having same energy are called;
(A) Hybrid orbitals (B) Valence orbitals (C) Degenerate orbitals (D) d-orbitals

9) When 6d orbital is complete, the entering electrons goes into;
(A) 7f (B) 7s (C) 7p (D) 7d

10) In the following species which have unpaired electrons in antibonding molecular orbitals.
(A) O_2^{2+} (B) N_2^{2-} (C) B_2 (D) F_2

11) In the following molecules which have zero dipole moment.
(A) NH_3 (B) $CHCl_3$ (C) H_2O (D) BF_3

12) For the reaction $NaOH + HCl \longrightarrow NaCl + H_2O$ the change in enthalpy is called;
(A) Heat of reaction (B) Heat of formation (C) Heat of Neutralization (D) Heat of combustion

13) The solubility product of AgCl is $2.0\times10^{-10}\,mol^2dm^{-6}$. The maximum concentration of Ag^+ ions in the solution is
(A) $2.0\times10^{-10}\,mol\,dm^{-3}$ (B) $1.41\times10^{-5}\,mol\,dm^{-3}$ (C) $1.0\times10^{-10}\,mol\,dm^{-3}$ (D) $4.0\times10^{-20}\,mol\,dm^{-3}$

14) 18 g of 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

15) An aqueous solution of ethanol in water may have vapour pressure;
(A) Equal to that of water (B) Equal to that of ethanol (C) More than that of water (D) Less than that of water

16) If a strip of Cu metal is placed in a solution of $FeSO_4$
(A) Cu will be deposited (B) Fe is precipitated out (C) Cu and Fe both dissolve (D) No reaction take place

17) The unit of the rate constant is the same as that of the rate of reaction in
(A) First order reaction (B) Second order reaction (C) Zero order reaction (D) Third order reaction

SGD-CHE-11-19

1119 (Inter Part - I) Warning:- Please, do not write anything on this question paper except your ...

Chemistry (Subjective) (Session 2015-17 to 2018-20) **Group (II)** **Paper (I)**

Time Allowed: 2.40 hours Maximum Marks: 68

Section ---------- I

2. **Answer briefly any Eight parts from the followings:-** $8 \times 2 = 16$

(i) Define macromolecules give examples. (ii) Differentiate between cation and Anion.
(iii) Atomic mass of elements are in fraction give reason.
(iv) Write four properties of best solvent. (v) Why is there need to crystallize crude products.
(vi) State charles law, write its mathematical form. (vii) Write any four properties of liquid.
(viii) Derive the value of "R" in "SI" units. (ix) Define Avogadros Law give examples.
(x) Define Molality. Also write its formula.
(xi) Write two difference between Ideal and Non Ideal solutions.
(xii) Aqeous solution of CH_3COONa is basic and aqeous solution of $CuSO_4$ is acidic give reason.

3. **Answer briefly any Eight parts from the followings:-** $8 \times 2 = 16$

(i) Write down any two uses of liquid crystals in daily life.
(ii) One feels sense of cooling under the fan after bath. Comment on it.
(iii) Ionic crystals donot conduct electricity in the solid state. Justify it.
(iv) Why sodium chloride and caesium chloride have different structures.
(v) State Moseley Law, Also write its two importance in periodic table.
(vi) Write down two defects of Rutherford's Atomic model.
(vii) Describe any two properties of canal rays.
(viii) How $^{14}_{7}N$ is converted into $^{11}_{5}B$. Give equation. (ix) State Le-chatelier's principle.
(x) Define pH and pOH. (xi) Describe Heterogeneous catalysis with an example.
(xii) Write note on (a) Auto catalyst (b) Promotor

4. **Answer briefly any Six parts from the followings:-** $6 \times 2 = 12$

(i) Define ionization energy. Give an example.
(ii) Why does the lone pair occupy more space than bond pair.
(iii) MOT is superior to VBT. Explain. (iv) Why dipolemoment of CO_2 is zero but H_2O 1.85 Debye.
(v) Define heat of neutralisation. Give an example. (vi) State Hess's Law.
(vii) Differentiate between electrolytic and Galvanic cell.
(viii) How is the impure copper purified. (ix) Explain the electrolysis of fused $PbCl_2$

Section ---------- II $(8 \times 3 = 24)$

Note: Attempt any three questions.

5. (a) Define empiral formula. Write down various steps to calculate the empirical formula of a compound.
(b) Differentiate between isomorphism and polymorphism with suitable examples.

6. (a) One mole of methane gas is maintained at 300 K. Its volume is 250 cm^3. Calculate the pressure exerted by the gas when gas is behaving as ideal.
(b) Describe J.J. Thomson experiment to determine the e/m value of an electron.

7. (a) Explain para magnetic behaviour of O_2 on the basis of Molecular orbital theory.
(b) Describe bomb Calorimeter method for calculation of enthalpy of a substance.

8. (a) The solubility of PbF_2 at $25\,^{\circ}C$ is $0.64\ g\,dm^{-3}$. Calculate solubility product constant (K_{SP}) of PbF_2. Molar mass of $PbF_2 = 245.2\ g\,mol^{-1}$
(b) Define order of a chemical reaction. How does half-life method can be used for its measurement.

9. (a) Give graphical explanation for depression in freezing point.
(b) Define electrochemical series of elements. Give its two applications.

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