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Inter. (Part-I)-A-2021

Roll No._____ to be filled in by the candidate.

(For all sessions)

Paper Code	6	4	8	3

Chemistry (Objective Type)

Rwp-21

Time: 20 Minutes **Marks: 17**

NOTE: Write answers to the questions on objective answer sheet provided. Four possible answers A,B,C & D to each question are given.Which answer you consider correct, fill the corresponding circle A,B,C or D given in front of each question with Marker or pen ink on the answer sheet provided.

1.1. For which system does the equilibrium constant,Kc has units of(concentration)$^{-1}$?

(A) $N_2 + 3H_2 \rightleftharpoons 2NH_3$ (B) $H_2 + I_2 \rightleftharpoons 2HI$

(C) $2NO_2 \rightleftharpoons N_2O_4$ (D) $2HF \rightleftharpoons H_2 + F_2$

2. 18g of glucose is dissolved in 90g of water.The relative lowering of vapour pressure is equal to:
(A) 1/5 (B) 5.1 (C) 1/51 (D) 6.0

3. Stronger the oxidizing agent,greater is the:
(A) Odixation potential (B) Reduction potential (C) Redox potential (D) E.M.F of cell

4. If the rate equation of a reaction: 2A+B ⟶ Products is, rate=K[A]^2[B], and A is present in large excess,then order of reaction is:
(A) 1 (B) 2 (C) 3 (D) 4

5. Isotopes differ in:
(A) properties which depend upon mass (B) arrangement of electrons in orbitals
(C) chemical properties (D) their behaviour in electromagnetic field.

6. Number of isotopes of Tin is/are:
(A) one (B) eleven (C) fifteen (D) eighteen

7. 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

8. Pressure remaining constant,at which temperature the volume of a gas will become twice of what it is at 0°C.
(A) 546 °C (B) 200 °C (C) 546 K (D) 273 K

9. The partial pressure of oxygen in the lungs is:
(A) 100 torr (B) 116 torr (C) 150 torr (D) 159 torr

10. When water Freezes at 0°C, its density decreases due to:
(A) Cubic structure of ice (B) Empty spaces present in the structure of ice
(C) Change of bond lengths (D) Change of bond angle

11. Which one of the following is an example of cubic system?
(A) Diamond (B) Borax (C) Iodine (D) Graphite

12. Brackett series lie in the region:
(A) U.V (B) I.R (C) Visible (D) X-Ray

13. Bohr model of atom is contradicted by:
(A) Plank's quantum theory (B) dual nature of matter
(C) Heisenberg's uncertainity principle (D) Newton theory

14. The number of bonds in nitrogen molecule is:
(A) one σ and one π (B) one σ and two π (C) three σ (sigma) only (D) two σ and one π

15. The covalent radius of Cl-atom is:
(A) 99.4 pm (B) 80 pm (C) 70 pm (D) 66.4 pm

16. One calorie is equivalent to:
(A) 0.4184J (B) 4.184J (C) 41.84J (D) 418.4J

17. pH value of vinegar is:
(A) 1.1 (B) 2.0 (C) 2.8 (D) 3.5

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(For all sessions)

RwP-21

Chemistry (Essay Type)

Time: 2:40 Hours

Section - I

Marks: 68

2- Write short answers of any eight parts from the following. 2 x 8 =16

i. Why is actual yield less than theoratical yield?
ii. Define Fractional crystallization with example.
iii. Magnesium atom is twice heavier than that of carbon.
iv. Define (i) Stationary phase (ii) Distribution co-efficient
v. Give uses of Chromatography.
vi. Why absolute zero is unattainable?
vii. What is (i) Isotherm (ii) Partial Pressure
viii. What are the Faulty points of Kinetic theory of Gas?
ix. Give quantitatively statement of Charles law.
x. Give any two differences between Ideal and Non Ideal solution.
xi. Colligative properties are obeyed when solute is non-volatile and solution is dilute. Justify it.
xii. 23 gram sodium and 238 gram Uranium have equal number of atoms.

3- Write short answers of any eight parts from the following. 2 x 8 =16

i. Distinguish between Isomorphism and polymorphism.
ii. Differentiate between continuous and line spectrum.
iii. How does polarizibility effect the strength of London Forces?
iv. What are the favourable conditions for ammonia synthesis on Industrial scale?
v. Why is it necessary to decrease the pressure in a discharge tube?
vi. Justify with examples that some reactions occur at higher rate and some may occur at moderate rate.
vii. Why positive rays are called canal rays?
viii. Why do crystals change their habit?
ix. How does the buffer solution act?
x. Radioactive decay is always a First order reaction.
xi. Define the terms (i) helix (ii) Deby Forces
xii. What is electromagnetic spectrum?

4- Write short answers of any six parts from the following. 2 x 6 =12

i. Why atomic radii cannot be determined precisely?
ii. Define electrode potential.
iii. Name factors affecting ionization energy.
iv. Calculate Bond order of Helium molecule(He_2).
v. Define enthalpy of atomization and give an example.
vi. Define heat and give its units.
vii. Differentiate between galvanic and electrolytic cell.
viii. How is copper purified by electrolysis?
ix. Why cationic radii are smaller than its parent atom?

Section - II

NOTE: Answer any three questions from the following. 8x3=24

5. (a) NH_3 gas can be prepared by heating two solids NH_4Cl and $Ca(OH)_2$.the mixture containing 100g of each.Calculate no. of grams of NH_3 produced. 4
   (b) Define and explain Hydrogen bondings by giving any two suitable examples. 4
6. (a) Define plasma and explain its four applications. 4
   (b) Explain the concept of orientation of orbitals by using magnetic quantum number. 4
7. (a) How ionization energy varies in periodic table? 4
   (b) What is internal energy?Discuss first law of thermodynamics. 4
8. (a) $N_2(g)$ and $H_2(g)$ combine to give $NH_3(g)$.The value of K_c in this reaction at 500°C is 6.0×10^{-2}.Calculate the value of Kp for this reaction. 4
   (b) Explain half life method for measurement of the order of a reaction can help us to measure the order of even those reactions which have fractional order. 4
9. (a) Explain elevation of boiling point with a graph. 4
   (b) Explain electrolysis of aqueous solution of salts. 4