April - 2016

Seat Number

कडबा - 004

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CHEMISTRY PAPER - I : CH-231 :
Physical & Inorganic Chemistry - I
(23135)

P. Pages : 2

Time : Two Hours **Max. Marks : 40**

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Graph or diagram should be drawn with the black ink pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. All Questions are compulsory.
5. Figures to the right indicate full marks.
6. Draw a neat diagram wherever necessary.
7. Use of logarithm table and calculator is allowed.

1. A) Multiple choice questions 4

i) The liquid mixture which shows maximum as well as minimum critical solution temperature.

a) Phenol – water b) Nicotine – water
c) Aniline – water d) Benzene – water

ii) Colligative property are mainly depends on

a) Number of solute particle b) Number of solvent particle
c) Amount of solvent d) Pressure of solvent.

iii) The metal ion which is not coloured is

a) Fe^{3+} b) V^{2+}
c) Zn^{2+} d) Ti^{3+}

iv) The material which allow the current to flow very easily are.

a) Insulator b) Semiconductor
c) Conductor d) None of these.

B) Answer **any two** of the following. 4

i) State and explain Raoult's Law.

ii) What do you mean by semipermeable membrane?

iii) Write the general electronic configuration of transition element.

iv) Why Zn, Cd & Hg are excluded from transition element.

2. Answer **any Two** of the following. 8

i) Define the term solubility. Explain the factors which affect solubility.

ii) Describe the Beckmann's method for the determination of molecular weight of non – volatile solute.

iii) Explain the catalytic property of d – block elements

3. A) Solve **any one** of the following. 4

i) The vapour pressure of 2.1% solution of electrolyte in water at 100 °C is 75.5 cm. Calculate the molecular weight of solute. If the vapour press. of water at 100 °C is 76.0cm.

ii) The percentage composition of a solution is 55% of A and 45% of B. Calculate mole fraction of both component of solution. (Molecular weight of A=18, molecular weight of B=60)

B) Answer **any one** of the following. 4

i) Explain, why transition metal exhibit variable oxidation state.

ii) Explain the free electron theory of metal.

4. Answer **any two** of the following 8

i) Show that elevation in boiling point is a colligative property.

ii) Transition metals have tendency to form complexes. Explain.

iii) Draw the energy band diagrams for conductor, insulator and semiconductor.

5. A) Answer **any one** of the following. 6

i) Explain the critical solution temperature. Discuss the triethyl amine - water system.

ii) Explain the following properties of d – block elements
a) M.P. and B.P. b) Colour

B) Give any two uses of fractionating column. 2

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