Oct-2013

Seat No. | | | | | | |

कुंतल - 030

CHEMISTRY PAPER - I (NEW) (23135) CHE-231

Physical Chemistry & Inorganic Chemistry - I

P. Pages : 2

Time : Two Hours

Max. Marks : 40

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answersheet should be written with blue ink only. Graph or diagram should be drawn with the same 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. Use of logarithmic table & calculator is allowed.

1. A) Multiple choice questions. 4

i) Molality of the solution is number of moles of solute present in.
   a) 100ml of solvent b) One litre of solution
   c) 1000gm of solvent d) 100gm of solvent.

ii) Abnormal molecular weights are obtained when there exists.
   a) Dissociation of molecules b) Association of molecules
   c) Either of the two d) None of these.

iii) Which one of the following has largest radii ?
   a) Mn^{3+} b) Cr^{3+}
   c) Fe^{3+} d) Co^{3+}

iv) Due to doping the conductivity of the semiconductors.
   a) Increases b) Decreases
   c) Remain same d) None of these.

B) Attempt **any two** of following. 4

i) Mention the main characteristics of an ideal solution.

ii) Define the term relative lowering of vapour pressure.

iii) Name two semiconductors which are commonly used.

iv) Why Zn , Cd and Hg are excluded from transition elements ?

2. Attempt **any two** of following. 8

i) Write a note on 'Azeotropes'.

ii) Describe Berkeley and Hartley's method to determine osmotic pressure of solution.

iii) What is meant by d-block elements ? Give their general electronic configuration. How they are subdivided into various series.

3. A) Answer **any one** of following. 4

i) Find the weights of glucose required to be added to 1000gm of water in order lower its freezing point by 1.75°C (molecular weight of glucose = 180, K_f for water = 1.86 K.Kg. $Mole^{-1}$).

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

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

i) Distinguish between conductor and Insulator.

ii) Metals are good conductor of heat and electricity. Explain with suitable examples.

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

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

ii) Explain magnetic properties of d-block elements.

iii) Explain the free electron theory of metal.

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

i) Define solubility. Discuss the phenol - water system.

ii) Explain the following properties of d - block elements.
a) Oxidation state b) Colour.

B) Draw a distillation diagrams of binary miscible solution of Type-II. 2

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