Oct-2013

Seat No. | | | | | | |

केंद्रक - 011

CHEMISTRY PAPER - I (NEW) (12135) CH -121

Physical & Inorganic Chemistry

P. Pages : 3

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. Draw a neat diagram wherever necessary.
7. Use of logarithmic table and non programmable calculator is allowed.

1. Attempt **any eight** of the following. **8**

i) The unit of Vander Waal's constant 'b' is -------

a) lit atm deg^{-1} $mole^{-1}$ b) atm deg^{-1}

c) lit $mole^{-1}$ d) deg^{-1} k.

ii) When Z > 1 the gas is ------

a) more compressible b) less compressible

c) expandable d) non expandable.

iii) Kinetic gas equation is --------

a) PV = nRT b) PV = KT

c) $PV = \frac{1}{3}nmu^2$ d) $PV = \frac{5}{2}nmu^{-2}$

iv) The critical volume is related with Vander Waal's constant.

a) $Vc = \frac{3}{2}b$ b) $Vc = \frac{4}{3}b$

c) Vc = 3b d) $Vc = \sqrt{b}$

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v) The element of symmetry are -----

a) Plane of symmetry b) axis of symmetry

c) Centre of symmetry d) All of these.

vi) Bravais lattices are of ------- type.

a) 8 b) 14

c) 12 d) 9

vii) Which one of the following element of 2nd period has zero affinity values ?

a) Li b) Be

c) B d) C.

viii) A factor that affects the ionization potential of element is -------

a) atomic size b) electron affinity

c) electro - negativity d) neutrons.

ix) In the following element which one is non metal element.

a) Ge b) Si

c) C d) Sn.

x) In the detection of III A group which one is the common ion in their group reagents.

a) Cl^- ion b) OH^- ion

c) H^+ ion d) N^+H_4 ion.

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

i) Give any two assumptions of kinetic theory of gases.

ii) State Grahm's law of diffusion.

iii) Define Boyle's point or Boyle's temperature.

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iv) What is the plane of symmetry ? Give types of plane of symmetry.

v) What is screening effect.

vi) What are acidic and basic radicals.

3. Attempt **any two** of the following. 8

i) Write kinetic gas equation and deduced Avogadro's principle from it.

ii) State and explain law of constancy of interfacial angle.

iii) The Vander Waal's constant for CO_2 are a = 3.6 lit^2 .atm. $mole^{-2}$ and b = 0.428 lit. $mole^{-1}$.
Calculate the critical temperature (Tc) and critical volume (Vc) of the gas.

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

i) Explain the determination of electronegativity of an atom by Mulliken's method.

ii) Write a note on common ion effect.

iii) Explain the critical phenomenon in liquids.

5. a) Derive reduced equation of state and give the statement of law of corresponding state. 6

OR

What is electron affinity ? Discuss the factors affecting the electron affinity.

b) Define heat of crystallization and heat of fusion. 2

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