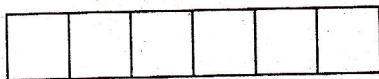


Oct -2014

कानन - 009



CHEMISTRY PAPER - I : CH - 121
Physical & Inorganic Chemistry
(12135)

P. Pages : 3

Time : Two Hours

Max. Marks : 40

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answer sheet 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. Use of logarithmic table and non-programmable calculator is allowed.
5. All questions are compulsory.
6. Draw a neat diagram wherever necessary.

1. Attempt any eight of the following.

8

i) The kinetic gas equation is _____.

a) $PV = nRT$

b) $PV = KT$

c) $PV = \frac{1}{3}nm\bar{u}^2$

d) $PV = \frac{5}{2}nm\bar{u}^2$

ii) The translational energy of a gas molecule is equal to _____.

a) Kinetic energy

b) $\frac{1}{2}mc^2$

c) Kinetic energy + Potential energy

d) $\frac{1}{2}KT^2$

iii) At high pressure the Van der waals gas equation reduces to _____.

a) $PV + \frac{a}{V} = RT$

b) $PV = \frac{a^2}{V} = RT$

c) $PV - Pb = RT$

d) $PV - \frac{a}{V} = RT$

- iv) A crystalline solid has _____.
a) definite shape b) flat faces
c) sharp edges d) all of these
- v) Bravais lattice are of _____ type.
a) 8 b) 12
c) 18 d) 9
- vi) Structure of NaCl crystal is _____.
a) trigonal b) cubic
c) orthorhombic d) Monoclinic
- vii) The Modern periodic table is given by
a) Mendelav b) Einstein
c) Bohr d) Mosley
- viii) In charcoal test mixture is prepared with _____.
a) NaCl b) NaHCO_3
c) Na_2CO_3 d) MnO_2
- ix) The family of elements to which Potassium belong to _____.
a) Alkali metal b) Alkaline earth metal
c) Halogens d) Noble gases
- x) Group II radicals precipitation as Sulphides by passing _____ gas in acidic solution.
a) H_2 gas b) CO_2 gas
c) CO gas d) H_2S gas

2. Answer **any four** of the following. 8
- State Avogadro's principle for ideal gas.
 - Define root mean square velocity.
 - Define Crystallography.
 - Give the name of different type of Symmetry of crystal.
 - What is screening effect.
 - Define electron affinity of an elements.
3. Attempt **any two** of the following. 8
- Prove Grahams Laws of diffusion by using kinetic gas equation.
 - Distinguish between Crystalline and Amorphous substance.
 - Calculate P_c and V_c for the gas having Van-der waals Constant 'a and b'.
- $a=0.758 \text{ Lit}^2 \text{ atm.Mol}^{-2}$
- $b=0.0428 \text{ Lit Mol}^{-1}$
4. Answer **any two** of the following. 8
- Why electronegativity of an element increases from left to right in period of periodic table.
 - Write in brief about solubility product.
 - Explain critical phenomenon in liquids.
5. Answer **any one** of the following. 6
- State and explain any six assumptions of kinetic theory of gas.
 - Explain the following properties of an elements
 - Electronegativity
 - Electron affinity
 - Sketch simple cubic unit cell. 2
