

B. Sc 2nd Semester (CBCS) Home Assignment

Subject: Chemistry (RC)

Paper: CHE-RC-2016

Last Date of Submission: 10/08/2020

Total Marks: 50

Question No 1: Answer the following questions

1X10=10

- For one mole of a gas the kinetic energy is-
i) $E=3/2R$, ii) $E=1/2RT$ iii) $E=5/2RT$ iv) $E=7/2RT$
- When a real gas behaves ideally?
- What we call the reciprocal of velocity?
- What is the unit of Viscosity?
- What is the difference between Evaporation and Boiling?
- What is the coordination number of body centered cubic lattice?
- What is crystal lattice?
- What is an ambidentate ligand?
- Write the IUPAC name of $[\text{Cr}(\text{CO})_6]$
- How many allotropes are found in phosphorous?

Question No 2: Answer the following questions

2X5=10

- At what temperature is the root mean square velocity of CO_2 gas the same as that of Cl_2 at 293K?
- What is meant by Collision frequency and mean free path?
- Why the liquid drops spherical?
- What is optical isomerism? Give the examples
- Why Be has higher ionization enthalpy than that of 'B' in second period.

Question No 3: Answer the following questions

5X3=15

- What is diagonal relationship? Explain the diagonal relationship between Be and Al?
- Write three limitations of Valence bond theory.
- Calculate the root mean square, average and most probable speed of Oxygen at 27°C.

Question No 4: Derive the relation, $P_C V_C = 3/8RT_C$

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Question No 5: Define the term surface tension? What are its units? Write some of the effects of surface tension.

1+1+3=5

Question No 6: What is crystal field stabilization energy? Write the three factors which affect the magnitude of crystal field splitting parameter?

2+3=5