B.Sc. Part-I
Physical Chemistry

Multiple Choice Questions

1. Time required for 100% completion of a zero order reaction is
   (a) 2K/a   (b) a/2K   (c) a/K   (d) aK

2. Unit of First order rate constant is
   (a) min^- (b) $m\ min^-$ (c) None   (d) both

3. The simplest way to check if a sys is a colloid is by using.
   (a) Brownian motion   (b) Hardy Schulze
   (c) Tyndal   (d) Electrical movement

4. Which method cannot be used for the coagulation of the lyophobic sol
   (a) Persistent dialysis   (b) Electrophoresis
   (c) Boiling   (d) Electrocsmosis

5. Critical constant is
   (a) V_C (b) T_C (c) P_C (d) All

6. Which is molecular velocity
   (a) Most probable   (b) Average
   (c) RMS   (d) All

7. Which is not Gas law
   (a) Henry   (b) Charle   (c) Boyle   (d) Avogodro

8. Which is not liquid crystal
   (a) Snectic   (b) Cholesteric   (c) Mematic   (d) Liquid

9. Application of liq. crystal is
   (a) Number Display   (b) Thermography
   (c) Seven segment cell   (d) All

10. Which is the state of matter

(a) Solid   (b) Gas   (c) Liquid   (d) All

Short Answer Questions

1. What is Boyle's temp.

2. Write Vanderwaal's Equation

3. Explain Joule Thomson effect.

4. Define unit cell and space lattice.

5. Define crystallographic axis and axial ratios.

6. Draw the (100) plane for a cubic crystal

7. What do mean by Symbol 'Pr'

8. Define common logarithm

9. Explain maximas & minima with examples.

10. Define free volume in liquid structure.

11. Write any two types of intermolecular forces.

12. What are metallic liquids.

13. Give two examples of nuclear fission.

14. Explain magic number.

15. What is spallation

Long Answer Questions

1. What is Arrhenius theory? In what way temp. effects the rate of reaction? Describe it.

2. Explain collision theory and pseudo order reaction.

3. Define partial differentiation method in detail.

4. Explain structure of nematic and cholestric phases.

5. Describe Eyring theory to explain structure of liquids.

6. Discuss applications and limitations of Vander Wall's equation.

7. Explain Maxwell-Boltz mann's law of distribution of Molecular velocities.

8. Explain Laues and powder methods to determine the structure of a crystal.

9. Explain Ostwald's isolation method for calculating the order of reaction.

10. Write notes on :

    (a) Rate law   (b) Half life of first order reaction