B.Pharm. Sixth Semester Examination
PHARMACEUTICS—VI (Physical Pharmacy)
Paper—1

Time : Three Hours]   [Maximum Marks : 80

N.B. :— (1) Question No. **1** is compulsory.
   (2) Solve any **four** questions from remaining.
   (3) Draw neat labelled diagram wherever necessary.
   (4) Assume suitable data wherever necessary.

1. Solve any **five** of the following :   4×5=20
   (a) Why addition of sodium oleate to phenol water system lowers the critical solution temperature ?
   (b) Define glass transition temperature (Tg). Explain effect of cross linking on Tg of polymer.
   (c) What is active and passive diffusion ? What is osmosis and ultrafiltration ?
   (d) Define solubility according to I.P.
   (e) Define rate, order and molecularity of a reaction. What do you understand by pseudo-order reaction ?
   (f) What are bulges and spurs in the hysteresis loop ?
   (g) What are complexes ? Give one example.

2. Derive an equation for solubility of non-ionic solids in liquids.   15

3. Explain steady state diffusion and derive Ficks First and Second law of diffusion. Add a note on measurement of diffusion coefficient.   15

4. What are Non-Newtonian systems ? Explain their types and comment briefly on thixotropy.   15

5. (a) What is the influence of pH on solubility of weak acids and weak bases ?   8
   (b) Give applications of polymers in Drug delivery systems.   7

6. (a) Write principle, working, disadvantages and modifications of Cup and Bob viscometer.   8
   (b) Explain metal ion complexes.   7

7. (a) How the stoichiometric ratio and stability constant is determined by solubility and distribution method ?   8
   (b) How the half-life and shelf-life of drugs can be calculated ?   7

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