Exam Code: 0433
Sub. Code: 3454

2122

M.Sc. (Applied Chemistry/Pharmaceutical)

Third Semester

Paper – 302: Physical Pharmacy

Time allowed: 3 Hours | Max. Marks: 60

NOTE: *Attempt five questions in all, including Question No. I which is compulsory and selecting one question from each Unit.*

x-x-x

1. Explain briefly

a) Surface tension and interfacial tension

b) Critical Micelle Concentration

c) Bulges formed by bentonite

d) Effect of heat and light on stability of drugs (3 x 4 =12)

UNIT- I

2. a) Derive Young-Laplace Equation. Explain its significance in Surface Chemistry.
b) Explain Hydrophilic-Lipophilic Balance in surfactants. Discuss one method to determine the HLB value. (6, 6)

3. a) What are emulsifiers? Discuss the role of emulsifier.
b) Briefly explain the wetting phenomena. (6, 6)

UNIT- II

4. a) What are protective colloids? Explain how a lyophilic colloid can stabilize a lyophobic colloid.
b) Colloidal solutions are thermodynamically unstable. Explain. (6, 6)

5. a) Discuss the effect of co-solvents and pH on the solubility product.
b) Discuss the various solubility parameters. (6, 6)

UNIT- III

6. a) Discuss the shear rate-shear stress relationship. How is it measured?
b) Differentiate between pseudoplastic, thixotropic and dilatant type of flows. (6, 6)

7. a) Explain the working of Cone and Plate Viscometer.
b) What are the applications of Rheology in pharmaceuticals? (6, 6)

UNIT- IV

8. a) What are inclusion and occlusion complexes? Give their applications in pharmacy.
b) What are the various methods used for the analysis of metal complexes? Discuss any one in detail. (6, 6)

9. Discuss the influence of various factors that affect the stability of drugs. (12)