Exam Code: 0433
Sub. Code: 3454

2123

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. a) What is zeta potential?
   b) Briefly explain critical micelle concentration.
   c) Explain bulges formed by bentonite.
   d) Define shelf life.
   e) What do you mean by crystal growth?
   f) Define Gold number. (2 x 6 = 12)

UNIT- I

2. Define Surface Tension and Interfacial Tension. With the help of a neat diagram describe the phenomenon of Electrical double layer and Zeta potential at interfaces. (12)
3. Write a short on:
   (a) Hydrophile-Lipophile Balance .
   (b) Pharmaceutical applications of surface phenomenon (6, 6)

UNIT-II

4. (a) State the various expressions used for expressing the solubility of solids in liquids. (6)
   (b) Explain sensitization of protective colloid action. (6)
5. (a) Discuss solute-solvent interactions. What are the various techniques that can be used to enhance the solubility of solids in liquids? (6)
   (b) What are the various factors affecting the solubility product? Explain. (6)

UNIT-III

6. What is Newtonian and Non-Newtonian flow? Explain the Non-Newtonian type of flow with suitable example. (12)
7. (a) Define viscosity and elaborate the concept, establishing relationship between shear rate and shear stress. (6)
   (b) Discuss the principle and working of Brookfield viscometer. Also give its advantages and disadvantages. (6)

UNIT-IV

8. (a) Discuss the effect of temperature, heat and catalytic species on the stability of drugs. (6)
   (b) How do you predict the stability of common pharmaceutical substances? (6)
9. Discuss mechanism of formation and analysis of metal complexes. (12)

x-x-x