9/12/16

Total No. of printed pages = 4

PY 134106

Roll No. of candidate | | | | | | | | | | |

2016

M. Pharm 1st Semester End-Term Examination

ADVANCED PHYSICAL PHARMACEUTICS

Full Marks –100 Pass Marks – 35 Time – Three hours

The figures in the margin indicate full marks for the questions.

PART – 1

1. Answer any *ten* questions : 10×3=30

(a) Discuss the importance of preformulation studies.

(b) How do particle size, shape and crystal forms affect the product development process ?

(c) Define bioavailability and its significance in oral drug delivery system.

(d) Give a method to determine the flow property of powders.

(e) Derive the value of $t_{½}$ and $t_{90\%}$ for first order reaction.

[Turn over

(f) Discuss the factors influencing solubility of drugs.

(g) Explain the effect of temperature on reaction rate.

(h) Define biodegradable and biocompatible polymers with suitable examples.

(i) Write the properties of tablet influenced by compression.

(j) Write the different drug release models through polymer matrix.

(k) Write the significance of Fick's law of diffusion in absorption process of drugs.

PART – 2

Answer any *five* questions : 10×5=50

2. Write an account on the types and properties of polymers used in pharmacy for controlled release formulation of drugs.

3. Write notes on : Dissolution Rate Test apparatus, Noyes Whitney equation, Higuchi's model.

4. Define solubilization. Explain the mechanism of solubilization of poorly water soluble drugs.

5. Discuss with suitable examples the roles of thermal analysis (DSC, DTA, TGA) and X-ray diffraction studies in preformulation trials.

6. Briefly describe the factors that can affect the dissolution and absorption of drugs. Write the importance of membrane controlled delivery in dosage form design.

7. What is the WHO and ICH guidelines for stability testing of solid dosage form ? Explain the measure to enhance the stability of drugs undergoing oxidation and hydrolysis.

PART – 3

Answer any *five* questions : 4×5=20

8. (a) Discuss the relationship between solubility and different polymorphic forms of the compound.

   (b) What is sink and no-sink condition ? Discuss how the sink condition is maintained during dissolution process.

   (c) What is hydrogel ? Discuss the mechanism of hydrogel in drug delivery system.

(d) Discuss the kinetics of drug decomposition.

(e) Discuss the method of θ_{10} value calculation.

(f) Explain how particle size reduction helps in increasing solubility of drug. Give different techniques for increasing solubility by this mechanism.