Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.Pharm (NEW)/SEM-3/PT-306/2009-10

2009

PHARMACEUTICS (PHYSICAL PHARMACY)

Time Allotted : 3 Hours Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : 10 × 1 = 10

   i) The angle of respose values are utilized to

      a) measure the movement of granules from hopper to the table of tableting machine

      b) select proper containers for capsules of a given mass of powders

      c) study the absorption of drugs

      d) understand dissolution of medicament.

   ii) Fluidity is a term associated with Newtonian fluids. An equivalent term in plastic flow fluids is

      a) apparent viscosity b) flexibility

      c) mobility d) plastic viscosity.

iii) The systemically available drug concentration is directly related to pharmacological action. The concentration is usually referred to

a) bound drug b) dose
c) total drug d) unbound drug.

iv) EDTA is an example of one of the following ligand type :

a) bidentate b) tetradentate
c) unidentate d) hexadentate.

v) For an ideal suspension the sedimentation volume should be

a) equal to one b) less than one
c) more than one d) zero.

vi) An 'emulsion within emulsion' is designated as

a) o/w/w b) w/o/w
c) w/o/o/w d) w/o/o.

vii) Tween 80 means

a) polyoxyethylene sorbitan monolurate
b) polyoxyethylene sorbitan monoleate
c) sorbitan monooleate
d) sorbitan monostearate.

viii) Which one is the example of dilatant flow ?

a) solution of tragacanth
b) concentrated titanium dioxide suspension
c) solution of gelatin
d) suspension of zinc oxide in mineral oil.

ix) Half-life of zero order reaction is

a) $\frac{0 \cdot 693}{k}$ b) $\frac{0 \cdot 1052}{k}$
c) $\frac{\text{initial concentration}}{2k}$ d) none of these.

x) Effect of temperature on reaction rate can be determined by

a) Stokes law b) Arrhenius equation
c) Schulz hardy rule d) Poiseuilles equation.

xi) Antifoaming agent have HLB of

a) 6-9 b) 1-3

c) 15-18 d) none of these.

xii) Which of the following is not used as suspending agent ?

a) Acacia b) Tragacanth

c) Methyl cellulose d) Soluble starch.

GROUP – B
(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Define shelf life. What additional information should be specified along with shelf life on the label of a product ? 2 + 3

3. Write the applications of drug - protein biding in drug activity. 5

4. What do you mean by liquid crystals ? Define eutectic mixtures. 5

5. Define spreading co-efficient of liquid. 5

6. Write a note on the phenomenon of electrical double layer with a neat diagram. 5

GROUP – C
(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. Define an emulsion. Mention three advantages of emulsion with suitable example. Discuss the factors which improve the physical stability of emulsions. 2 + 5 + 8

8. What is meant by yield value ? Explain dilatant flow of fluid. Describe a suitable method for the determination of viscosity of dilatant fluid. What is thixotropy ? 2 + 4 + 6 + 3

9. a) What do you understand by the term 'specific surface of particles' ? With the help of labelled diagram, explain the working of an instrument used to determine specific surface area.

   b) What do you mean by intraparticle porosity ? The true density of a powder mixture is 3·023. When compressed into tablet from, the granule density of the mixture is found to be 3·138. What is the porosity of the tablet ? 2 + 6 + 2 + 5

10. a) Define order of reaction.

    b) Write the derivation of rate constant, half life and shelf life of zero order reaction.

    c) A suspension shows zero order kinetics with a rate constant of 2 mg/ml month. The dose of the suspension is 20 mg/ml.

       i) Calculate t_{90}. The solubility is 0·1 mg/ml.

       ii) What is the first order rate constant ? Calculate half life of zero order. 2 + 6 + 7

11. a) Classify disperse systems on the basis of particle size with example.

    b) Differentiate between flocculated and deflocculated suspension.

    c) Write a note on accelerated stability study. 4 + 4 + 7