Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.Pharm/SEM-7/PT-706/2009-10

2009
PHARMACEUTICS
(PHARMACEUTICAL TECHNOLOGY)

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) Which one is the mutual prodrug ?

      a) Diazepam-HCl

      b) Chlorpheniramine maleate

      c) Benorylate

      d) Chloramphenicol.

   ii) Which one of the following is a water soluble polymer ?

      a) Sodium alginate

      b) Polystyrene

      c) Polymethyl methacrylate

      d) PVC.

iii) The sink condition during *in vitro* dissolution study is maintained when

a) $C_s >> C_b$ b) $C_s << C_b$

c) $C_s = C_b$ d) none of these.

iv) Sorbitan mono-oleate is an example of

a) cationic surfactant

b) anionic surfactant

c) non-ionic surfactant

d) water soluble surfactant.

v) Niosomes are vesicles for drug delivery made up of

a) PVC b) Surfactant

c) Phospholipid d) all of these.

vi) Dissolution is affected by

a) pH b) temperature

c) surfactant d) all of these.

vii) The value of compressibility index (I) which indicates a good flow property is

a) below 15% b) above 15%

c) above 25% d) below 25%.

viii) Solubility of hydrocortisone-21-heptanoate

a) is less than hydrocortisone

b) more than hydrocortisone

c) same as hydrocortisone

d) none of these.

ix) If V_b^2 is Bulk volume, V_t^2 true volume, then equation for Carr's Index is

a) $C_2\left(1-\frac{V_t}{V_b}\right)\times 100$

b) $C_2\left(1-\frac{V_b}{V_t}\right)\times 100$

c) $C_2\left(\frac{V_t}{V_b}-1\right)\times 100$

d) $C_2\left(V_t \cdot V_b - 1\right)\times 100$.

x) The method of measuring *true* density is

a) Water displacement method

b) Helium displacement method

c) Mercury displacement method

d) none of these.

xi) The accelerated testing condition is

a) 40 ± 2° / 75 ± 5% RH

b) 45 ± 2° / 75 ± 5% RH

c) 30 ± 2° / 70 ± 5% RH

d) 35 ± 2° / 75 ± 5% RH.

xii) Example of enantiotropic polymorph is

a) sulphur

b) glyceryl stearate

c) both sulphur and glyceryl stearate

d) none of these.

xiii) The absolute bioavailability of the extravascular dosage form is determined by which of the following equations when the doses are not equal ?

a) $F = \frac{[\text{DOSE}]_{ev}}{[\text{DOSE}]_{iv}}$

b) $F = \frac{[\text{AUC}]_{ev}}{[\text{AUC}]_{iv}}$

c) $F = \frac{[\text{AUC}]_{ev}/\text{DOSE}_{ev}}{[\text{AUC}]_{iv}/\text{DOSE}_{iv}}$

d) $F = \frac{[\text{AUC}]_{ev} \times \text{DOSE}_{ev}}{[\text{AUC}]_{iv} \times \text{DOSE}_{iv}}$.

GROUP – B
(Short Answer Type Questions)

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

2. What are the factors affecting the design of an *in vitro* dissolution test ?

3. Briefly describe the transdermal patch type drug delivery system.

4. Describe the effect of physical form in preformulation studies.

5. Write a note on osmotic pump.

6. What is oxidation ? How to prevent oxidation ?

GROUP – C
(Long Answer Type Questions)

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

7. What do you mean by validation ? Briefly describe the process validation steps of a suspension type dosage form. 3 + 12

8. a) Explain minimum effective concentration, C_{max}, t_{max} onset & duration of drug action & therapeutic intensity of a drug by sketching a drug concentration *vs* time curve.

b) Initial concentration of a formulation is 100 units/ml. The specific rate of decomposition from Arrhenius plot at R.T. is 2×10^{-5} hr^{-1}. When the concentration falls below 80 units/ml, it became unsuitable for consumption. If the formulation follows 1st order kinetics then what should be the expiration period for the formulation ? 10 + 5

9. a) Describe the approaches in designing of controlled release drug delivery system.

b) What are the advantages and disadvantages of controlled release drug delivery system ? 10 + 5

10. a) Define prodrug. Write the role of prodrug in solving the problem related to chemical stability, solubility, organoleptic properties of formulation with suitable example.

b) What are the limitations of prodrug designing ? Explain with example. 2 + 8 + 5

11. a) What do you mean by GMP, quality audit and quality assurance ? Write down the objectives of GMP and quality audit.

b) How GMP should be followed in pharmaceutical industries to obtain an ideal formulation ? 3 + 5 + 7