

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.

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

- a) $C_s \gg C_b$ b) $C_s \ll C_b$
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%.

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

x) The method of measuring *true* density is

- a) Water displacement method
- b) Helium displacement method
- c) Mercury displacement method
- d) none of these.

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xi) The accelerated testing condition is

- a) $40 \pm 2^\circ / 75 \pm 5\% \text{ RH}$
- b) $45 \pm 2^\circ / 75 \pm 5\% \text{ RH}$
- c) $30 \pm 2^\circ / 70 \pm 5\% \text{ RH}$
- d) $35 \pm 2^\circ / 75 \pm 5\% \text{ RH}$.

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

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GROUP – B
(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

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. $3 \times 15 = 45$

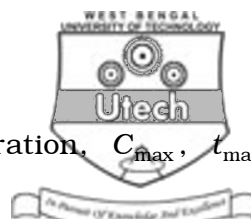
7. What do you mean by validation ? Briefly describe the process validation steps of a suspension type dosage form. $3 + 12$

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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 $2 \times 10^{-5} \text{ hr}^{-1}$. 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

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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
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