	<u>Uiech</u>
Name :	
Roll No.:	An Adaptive Of Street Safe Standard
Invigilator's Signature :	•••••

### CS/B.PHARM (NEW)/SEM-6/PT-611/2011

# 2011 PHARMACEUTICS (BIOPHARMACEUTICS AND PHARMACOKINETICS)

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 )

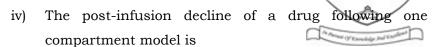
1.	Choose the	correct	alternatives	for any	ten of th	ne following	ŗ:
						10 × 1 :	= 10

- i) Therapeutic window of a drug having very large therapeutic index is
  - a) wide

- b) narrow
- c) moderate
- d) none of these.
- ii) Dissolution rate is proportional to
  - a) effective surface area
- absolute surface area
- c) surface area
- d) all of these
- iii) Site III on human serum albumin is known as
  - a) Digitoxin binding site
  - b) Tamoxifen binding site
  - c) Diazepam binding site
  - d) Lamoxifen binding site.

6227 Turn over

## CS/B.PHARM (NEW)/SEM-6/PT-611/2011



- a) monoexponential
- b) biexponential
- c) triexponential
- d) Multiexponential.
- v) Mean residence Time (MRT) is equal to
  - a)  $\frac{AUC}{AUMC}$
- b)  $\frac{AUMC}{AUC}$

c)  $\frac{AUC}{MSC}$ 

- d) none of these.
- vi) The maximum value of extraction ratio is
  - a) 0.7

b) 0.99

c) 0.9

- d)  $1 \cdot 0$ .
- vii) Solubility of amorphous form of a drug is
  - a) less than its crystalline form
  - b) more than its crystalline form
  - c) less than its hydrate form
  - d) same as crystalline form.
- viii) Betacyclodextrin increases the solubility of poorly soluble drug by
  - a) Cosolvency
- b) Solubilisation
- c) Inclusion complexationd)
  - Chemical modification.
- ix) Which type of drugs can cross blood brain barrier rapidly?
  - a) Low o/w coefficient
- b) Non-polar

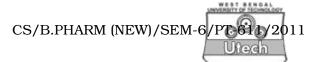
c) Polar

- d) High o/w coefficient.
- x) Absorption of drugs from transdermal route follows

2

- a) active transport
- b) passive diffusion
- c) endocytosis
- d) facilitated diffusion.

6227



- xi) Gastric emptying time means
  - a) the time required for the gastric contents to empty into small intestine
  - b) the time taken for half the stomach contents to empty out
  - c) the speed at which the stomach contents empty into the intestine
  - d) none of these.
- xii) Plasma volume is determined by the use of which marker?
  - a) Evans blue
- b) Cr-51
- c) Mannitol
- d) None of these.

 $3 \times 5 = 15$ 

#### GROUP - B

## (Short Answer Type Questions)

Answer any *three* of the following.

- 2. Explain why in vivo drug dissolution is always faster than in vitro drug dissolution.
- 3. Lay out a Latin square crossover diagram for bioequivalency study on three formulations A, B and C in six volunteers.
- 4. What are the differences between facilitated diffusion and active transport?
- 5. Write any one method for determination of  $K_{\rm E}$  from Urinary excreation data.
- 6. Name the specialized barriers to distribution of drugs.

  Describe the anatomy and physiology of blood brain barrier.

6227 3 [Turn over

#### CS/B.PHARM (NEW)/SEM-6/PT-611/2011



#### **GROUP - C**

## (Long Answer Type Questions)

Answer any *three* of the following. 3

 $3 \times 15 = 45$ 

- 7. What is compartment modelling? Describe the advantages & disadvantages of compartment modelling. Explain the pharmacokinetic parameters in the intravenous infusion of one compartment open model. 2 + 5 + 8
- 8. a) Discuss Wagner-Nelson method for the estimation of  $K_a$  from plasma concentration time data.
  - b) The half-life of propranolol in a 60 kg patient is 4 hours and  $V_d$  is 5.5 litre/kg. Determine the total systemic clearance of the drug. What will be its real clearance if friction excreted unchanged in urine is 0.047? 8+7
- 9. a) What are the causes of non-linear pharmacokinetics?
  - b) Describe the Michaelis-Menten equation to indicate kinetics of capacity limited process.
  - c) What are the Hanes-Woolf plot and Woolf -Augustinsson - Hofstee plot. 5 + 6 + 4
- 10. Explain the following:
  - a) pH-partition hypothesis of drug absorption.
  - b) Interohepatic circulation
  - c) Human Serum Albumin considered a versatile protein for drug binding. 5 + 5 + 5
- 11. a) Explain the mechanism of renal clearance.
  - b) Write a note on the Extraction ratio.
  - c) Explain the concept of the apparent volume of distribution.
  - d) Differentiate between bioavailability and bioequivalence. 5 + 4 + 4 + 2

6227 4