

Printed pages: 2
Paper ID: 5053

Roll. No.

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|

Sub Code: BOP-472

B.PHARM
(SEM VII) THEORY EXAMINATION 2017-18
BIOPHARMACEUTICS & PHARMACOKINETICS

Time: 3 Hours

Total Marks: 100

- Note:** 1. Attempt all Sections. If require any missing data; then choose suitably.
2. Any special paper specific instruction.

SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

- a. What is half life of drug?
- b. Explain absorption window.
- c. What is Biopharmaceutics classification system (BCS) of drugs?
- d. Describe endocytosis.
- e. According to the Lipinski rule of five for permeability, what is the value of lipophilicity (log P) of drug molecule?
- f. "Fatty meals delay the gastric emptying time by promoting secretion of bile". The statement is correct or incorrect?
- g. If drug has 100% tendency to bind with plasma protein then it will consider as pharmacologically active or inactive?
- h. What is absolute bioavailability?
- i. Define Dissolution rate.
- j. Define biopharmaceutics?

SECTION B

2. Attempt any *three* of the following: **10 x 3 = 30**

- a. What do you understand by the term compartment modeling? Differentiate between the physiological and pharmacokinetic models.
- b. Differentiate between the bioavailability and bioequivalence. Explain the various methods used to measurement of bioavailability.
- c. What is drug absorption? Explain the various theories to drug dissolutions.
- d. A dose of 50mg was administered to healthy volunteer, find out the various parameters with the help of collected data shown in the table below-
(TRAPHAZOIDAL METHOD)

| Time | Cp(mg/l) |
|------|----------|
| 0.5 | 6.75 |
| 1 | 6.47 |
| 2 | 5.68 |
| 4 | 4.29 |
| 6 | 3.76 |
| 8 | 2.97 |
| 10 | 2.17 |

SECTION C

3. Attempt any *one* part of the following: **10 x 1 = 10**

- a) Explain various physiological barriers present in body which affect the process of drug distribution.
- b) Write a note on Wagner- Nelson method for estimation of absorption rate constant and their significance.

4. **Attempt any *one* part of the following:** **10 x 1 = 10**
- What are the various types of factors affecting the drug absorption?
 - Highlight the classification and mechanism for the binding of drug to blood component.
5. **Attempt any *one* part of the following:** **10 x 1 = 10**
- What is iv infusion? Calculate the various parameters with the help of open compartment iv infusion
 - Calculate the various parameters and absorption rate constant with the help of urine data method.
6. **Attempt any *two* parts of the following:** **5 x 2 = 10**
- In Vitro- In Vivo* correlation (IVIVC).
 - Note on loo-reigelman method
 - Mechanism of drug absorption.
7. **Attempt any *two* parts of the following:** **5 x 2 = 10**
- Explain plasma drug concentration profile. Discuss various pharmacokinetic parameters and their significance.
 - Discuss the chemical pathways of drug biotransformation.
 - The Vd of penicillin is 4000 litre, calculate the plasma concentration when the amount of drug in the body is 2mg.