Roll No. 224591 Jan., 2024/40317

B. Pharmacy 4th Semester
Physical Pharmaceutics-II

Time: Three hours M. Marks: 75

Note: 1. Attempt all the following questions as per the instructions.
2. Don't write anything on the question paper, except Roll No.
3. Read the instructions carefully, mentioned in the answer sheet.
4. Use only blue/black ink pen to attempt answers. Use of pencil is prohibited.

Section –A

Q.1 (a) What are colloidal dispersions? 2x10=20
(b) Define a first order reaction.
(c) Write the significance of bulk density.
(d) What is a pseudoplastic system?
(e) What is the Tyndall effect?
(f) What is the significance of the zeta potential?
(g) What is the use of Heckel equation?
(h) What are the different types of particle size distribution?
(i) What is expiration dating?
(j) Define the hydrophile-lipophile balance.

Section –B

Long answer type questions: Answer any two out of the following three questions. 10x2=20

Q.2 What is the Non-Newtonian flow? Discuss the method for determination of viscosity using a capillary viscometer. 10

Q.3 Discuss the interfacial properties of emulsions. Briefly explain the methods for improving the stability pharmaceutical emulsion. 10

Q.4 Explain the technique for the accelerated stability testing of the pharmaceutical formulations. Discuss physico-chemical factors affecting the stability profile of a drug. 10

Section- C

Short answer type questions: Answer any seven out of the following nine questions. 5x7=35

Q.5 What are the rheological properties of suspension formulations? 5

Q.6 How will you determine the zero order reaction rate constant? 5

Q.7 Define thixotropy and explain its significance in formulation stability. 5

Q.8 Discuss the determination of different derived properties of powders. 5

Q.9 What is the principle of the Anderson pipette method? How will you use this method to determine the particle size distribution? 5

Q.10 What are the optical properties of colloids? 5

Q.11 Write the method to stabilize a formulation against oxidation. 5

Q.12 Explain the principle of a falling sphere viscometer. 5

Q.13 What are the adsorption isotherms? Write their applications. 5

Jan., 2024/60417

Roll No. 230701

B. Pharmacy 6th Semester
Biopharmaceutics and Pharmacokinetics

M. Marks: 75

Time: Three hours

Note: 1. Attempt all the following questions as per the instructions.
2. Don't write anything on the question paper, except Roll No.
3. Read the instructions carefully, mentioned in the answer book.
4. Use only blue/black ink pen to attempt answers. Use of pencil is prohibited.

Section-A

2x10=20

Q.1 **Answer all the following questions.**

(a) What is the apparent volume of drug distribution?
(b) Explain passive diffusion.
(c) Explain various mechanisms of drug absorption through GIT.
(d) What is active diffusion?
(e) Explain the term drug absorption.
(f) Distinguish between relative bioavailability and bioequivalence.
(g) What are the factors affecting renal excretion of drugs?
(h) How to determine pharmacokinetic parameters from plasma concentration data following I.V. drug infusion?
(i) Explain the clinical significance of protein binding of drugs.
(j) Explain different methods of improving the dissolution of poorly soluble drugs. 10x2=20

Section-B

(Long answer type questions: Answer any two questions out of the following three questions).

Q.2 Please provide a brief on the methods used for analyzing pharmacokinetic data. 10

Q.3 Please explain the design of a single-dose bioequivalence study. What are the difficulties in using patients as subjects in bioavailability studies? And why is a washout period necessary in a bioavailability study? 10

Q.4 Please provide the equations for Cmax, Tmax, and AUC using plasma-level time data and explain the significance of these parameters in terms of bioavailability. 10

Section-C

(Short answer type questions: Answer any seven questions, out of the following nine questions). 5x7=35

Q.5 Explain loading and maintenance doses and their importance in clinical settings. 5

Q.6 Discuss the *in-vitro-in-vivo* correlations with appropriate examples. 5

Q.7 How will you calculate loading and maintenance doses? 5

Q.8 What are pharmacokinetic models, and what is their significance and utility? 5

Q.9 Discuss the factors causing non-linearity. 5

Q.10 Classify and elaborate various dissolution testing models. 5

Q.11 Explain pharmacodynamic drug interactions with examples. 5

Q.12 Discuss the kinetics of multiple dosing in detail. 5

Q.13 Explain factors affecting protein-drug binding. Discuss the kinetics of protein binding. 5

Roll No.....

Dec., 2024/60517

B. Pharmacy 6th Semester
Pharmaceutical Biotechnolgy

Time: Three hours

M. Marks: 75

Note: 1. It is compulsory to attempt all questions of Section-A.
2. Attempt any two questions from Section-B.
3. Attempt any seven questions from Section-C.
4. Use only blue/black ink pen to attempt answers. Use of pencil is prohibited.

SECTION–A

Q.1 **Write short note on the following:** 2x10=20

(a) Name any two methods of enzyme Immobilization.
(b) What is the role of transducers in biosensor?
(c) Give two applications of genetic engineering in medicine.
(d) Define the term Immunity.
(e) DNA Ligase Restriction Endonuclease enzyme is used for which purpose?
(f) Name the immunoglobulin which is responsible for Rh immune response.
(g) Give full form of ELISA. Give its application also.
(h) Differentiate between Mutants and Mutagens.
(i) Who discovered Penicillin? Why is more effective against Gram Positive Bacteria?
(j) Define Fermentation. Give two examples of Fermenter.

SECTION–B

Long answer type questions. Answer any two questions out of the following three questions. 10x2=20

Q.2 Explain in detail biotechnological production of hormone insulin by using rDNA technology.

Q.3 Discuss Hybridoma Technology in detail. Add a note on the applications of hybridoma technology.

Q.4 Write a descriptive note on:
a. ELISA
b. Western Blotting Technique

SECTION- C

Short answer type questions. Answer any seven questions out of the following nine questions. 5x7=35

Q.5 Describe the principle of biosensor. Explain different types of biosensors.

Q.6 Explain production of enzyme amylase or protease. Discuss their applications also.

Q.7 Differentiate between Eukaryotic and Prokaryotic genome with help of diagram.

Q.8 Classify immunity. Compare and contrast cellular and Humoral Immunity.

Q.9 What do you understand by interferon? Write a descriptive note on Polymerase.

Q.10 Chain Reaction (PCR).

Q.11 What are the different types of fermentation methods? Discuss.

Q.12 Give basic principles of genetic engineering.

Q.13 Draw a labelled diagram of fermenter.