

PURUS - VII (SEMESTER PATTERN) : APRIL / MAY - 2011
SUBJECT : BIOPHARMACEUTICS AND PHARMACOKINETICS

Day : Friday
Date : 29-04-2011

Time : 2:00 P.M. To 5:00 P.M.
Max. Marks : 80

N. B. :

- 1) Q. No. 1 and 5 are **COMPULSORY**. Out of remaining attempt **ANY Two** questions from each section.
- 2) Both the sections should be written in the **SEPARATE** answer sheets
- 3) Figures to the right indicate **FULL** marks.

SECTION - I

- Q. 1** Answer the following **ANY FIVE** (10)
- a) Classify drug transport mechanisms.
 - b) Dissolution rate is better related to drug absorption and bioavailability than solubility. Justify this statement.
 - c) Phenobarbital and salicylic acid have almost the same K_o/w but the former shows extensive distribution. Why?
 - d) How can the principle of binding be used for drug targeting?
 - e) What are microsomal and non microsomal enzymes?
 - f) What physicochemical properties of drug govern its urinary excretion?
- Q. 2** a) Explain the influence of drug pKa and GI pH on absorption of drug. (08)
b) Explain the significance of gastric emptying and intestinal transit on drug absorption. (07)
- Q. 3** a) Explain the kinetics of drug protein binding to determine binding constant and the number of binding sites. (08)
b) Give an account of physiological barriers to drug distribution. (07)
- Q. 4** Write notes on **ANY TWO** of the following: (15)
- a) Bioactivation and tissue toxicity
 - b) Factors affecting renal clearance
 - c) Theories of drug dissolution

SECTION - II

- Q. 5** Answer the following **ANY FIVE** (10)
- a) What is meant by non-compartmental analysis? Give its advantages.
 - b) Define pharmacokinetics. Explain the three pharmacokinetic parameters that describe a typical plasma level time curve.
 - c) Define clearance and total body clearance. Give the equation for total body clearance.
 - d) State the advantages of using urinary excretion data in assessment of pharmacokinetic parameters.
 - e) Define bioavailability. What are the objectives of bioavailability studies?
 - f) What are the various levels of in vitro-in vivo correlation?

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- Q. 6** a) Define the pharmacokinetic parameters for a drug given as IV bolus assuming it follows two compartment open model. (08)
b) Explain the determination of K_E from urinary excretion data based on rate of excretion method. (07)
- Q. 7** a) Give detailed account of bioequivalence experimental study design. (08)
b) Explain the pharmacokinetic based methods to determine bioavailability. (07)
- Q. 8** Write notes on ANY TWO of the following: (15)
a) Hepatic clearance
b) Method of residuals
c) Compartmental modeling

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PURUS-VII : APRIL/ MAY 2011 (Sem Pattern)
SUBJECT : MEDICINAL CHEMISTRY-III

Day : Thursday
Date : 21.04.2011

Time : 2:00 P.M. To 5:00 P.M.
Max. Marks : 80.

N.B.:

- 1) Q. No. 1 and Q. No. 5 are **COMPULSORY**. Out of the remaining solve any **TWO** questions from each section.
- 2) Both the sections should be written in **SEPARATE** answer books.
- 3) Figures to the **RIGHT** indicate full marks.

SECTION-I

- Q.1** Attempt any **FIVE** of the following: (10)
- a) Define purgatives. Give their examples.
 - b) Write down synthesis of sulfanilamide.
 - c) What are Aminoglycoside antibiotics? Give their examples.
 - d) Write down synthesis of chloramphenicol.
 - e) What are Antiflatulence agents? Give their examples.
 - f) Draw structure of 6APA and 7ACA.
- Q.2** Define term 'Antibiotic'. Give their chemical classification. Explain in brief (15)
chemistry, SAR and MOA of B-Lactam Antibiotics.
- Q.3** What are sulfonamides? Give their classification. Give chemistry SAR and uses of (15)
N-1 substituted sulfonamides.
- Q.4** Write short notes on any **THREE** of the following: (15)
- a) Polypeptide antibiotics
 - b) Tetracyclines
 - c) Antacids
 - d) Quinolones.

SECTION-II

- Q.5** Attempt any **FIVE** of the following: (10)
- a) Write down synthesis of primaquine
 - b) Draw structure of streptomycin
 - c) Enlist various fluoroquinolones
 - d) Write down synthesis of Isoniazide
 - e) Enlist various Ipecac Alkaloids
 - f) Give examples of Antineoplastic antibiotics.
- Q.6** What are Antimalarial agents? Give their chemical classification and explain in (15)
brief chemistry, SAR and MOA of 8 aminoquinolines.
- Q.7** Define various terms used in cancer. Classify various antineoplastic agents. Give (15)
chemistry, SAR and MOA of Alkylating agents.
- Q.8** Write short notes on any **THREE** of the following: (15)
- a) Anti-TB agents
 - b) Synthetic Amoebicidal agents
 - c) Antiseptic agents
 - d) Drugs used for treatment of worm infection.

PURUS – VIII: APRIL / MAY 2011 (Semester Pattern)
SUBJECT: PHARMACEUTICAL ANALYSIS - V

Day : Monday
Date : 25-04-2011

Time: 2:00 P.M. To 5:00 P.M.
Max. Marks : 80

N.B.:

- 1) Q.No.1 and 5 are **COMPULSORY**. Out of remaining questions attempt **ANY TWO** from each section.
- 2) Answers to both the section should be written in the **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.

SECTION – I

- Q.1** Answer **ANY FIVE** in short: [10]
- a) Crystal behaves like a grating in x-ray methods.
 - b) X-rays can be produced by radioactive materials.
 - c) Different ionization methods in mass spectrometry
 - d) Radio immuno assays are more specific.
 - e) Resolution in mass spectrometry
 - f) Negatively charged ions in mass spectrometry
 - g) Base peak
- Q.2** a) Draw a neat labeled diagrams of a x-ray tube and explain its working. [07]
b) Write principle and applications of x-ray diffraction. [08]
- Q.3** a) Write principle, instrumentation and applications of mass spectrometry. [10]
b) Write about GC-MS. [05]
- Q.4** Write short notes on **ANY THREE** of the following: [15]
- a) X-ray absorption spectroscopy
 - b) ELISA
 - c) Structure determination by mass spectrometry

SECTION – II

- Q.5** Answer **ANY FIVE** in short: [10]
- a) Name components of instrument used in flame emission spectroscopy.
 - b) Write in brief “what is frequency sweep” in NMR.
 - c) What is the effect of hydrogen bonding on chemical shift?
 - d) State importance of flame temperature in flame emission spectroscopy.
 - e) What are the parameters of aqueous sample solution that affect emission intensity?
 - f) What are different types of magnets used in NMR spectrometers?
 - g) What is precessional frequency?
- Q.6** a) Write a note on “Hollow Cathode Lamp”. [05]
b) Comment on different atomizers used in Atomic Absorption Spectroscopy. [10]
- Q.7** a) Explain the term “coupling constant”. [05]
b) Describe anisotropy in NMR with suitable examples. [10]
- Q.8** Write short notes on **ANY TWO** of the following: [15]
- a) Chemical shift reagents
 - b) Applications of Atomic Absorption Spectroscopy
 - c) Double resonance techniques

