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SB-3589

M. Sc. (Part-II) Examination

March / April – 2011

Pharmaceutical Chemistry : Paper - III

(Drug Metabolism, Pharmaceutical & Pharmacognosy)

Time : **3** Hours] [Total Marks : **70**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **M. Sc. (Part-II)**

Name of the Subject :

☛ **Pharmaceutical Chemistry : Paper - III**

☛ Subject Code No. : **3 5 8 9** ☛ Section No. (1, 2,.....) : **1&2**

Seat No. :

Student's Signature

(2) Answers to the two sections ahould be written in separate answer books.

(3) Figures to the right indicate full marks of the question.

SECTION - I

1 (a) Distinguish configuration and conformation. Give an applications of conformation in designing new drug. **12**

(b) What is hydrogen bonding ? Giving examples discuss the role of hydrogen bonding in lipophilicity of drug.

(c) Give the importance of stereoselective structure. Discuss how stereochemistry is useful in designing new drugs ?

OR

1 (a) What are the obejectives of drug designing ? Discuss these with suitable examples. **12**

(b) Define the term endogenous and exogenous compounds. Discuss the importance of water solubility drug designing.

(c) What is solvation ? Discuss the role of polar and nonpolar solutes affecting the solubility behaviour of drug.

2 (a) Names the phase-I reactions; Discuss any three with suitable examples. **12**

(b) Define the term biotransformation. Give an account of biological factors affecting on drug metabolism.

(c) Discuss general metabolic routes for drugs in body and pharmacokinetics of metabolites.

OR

2 (a) Discuss with suitable examples different conjugation reactions in drug metabolism. **12**

(b) Discuss the role of oxidation and reduction reactions in drug metabolism.

(c) Define Bioprecursor prodrugs and give a brief account on Carrier prodrugs.

3 (a) Give a brief account of Taft steric parameter (Es) and its significance. **11**

(b) Which parameters are used to represent the lipophilicity in QSAR ? Explain any two of them in detail.

(c) What is Topliss decision tree concept ? Discuss its application in drug design with example.

OR

3 (a) What is SAR ? Giving illustration discuss the introduction of new substituents in drug activity ? **11**

(b) Explain Hammet constant σ and ρ ; give their significance.

(c) Explain Hansch's mathematical method in studying structure activity relationship.

SECTION - II

4 (a) What is molecular modeling method ? Discuss their stick and space fill models and applications based on molecular mechanics approach. **12**

(b) Discuss the general aspects of combinatorial chemistry. Describe mix and split method for structural determination.

(c) Explain the tagging method for structural determination of the active compounds.

OR

4 (a) What is docking study ? Discuss briefly the finding potential of the ligand to target site by using docking study. **12**

(b) Describe the concept of parallel synthesis and discuss Houghton's tea bag procedure for parallel synthesis.

(c) Explain with diagram deconvolsion method of screening for active member of library.

5 (a) Derive the equation for steady state level in intravenous infusion. **12**

(b) What do you mean by clearance ? Derive the mathematical equation for clearance and give its significance.

(c) Explain briefly an intravenous bolus in drug administration and derive the equation for the total amount of drug in the system.

OR

5 (a) Discuss the general stages and relationships in the life cycle of a drug after administration. **12**

(b) How $t_{1/2}$ and K_{el} are useful in comparison of pharmacological effect with equations and plots.

(c) What is bioavailability ? Discuss the relative bioavailability and absolute bioavailability.

6 (a) Define pharmacognosy. Discuss in brief the scope and development of pharmacognosy. **11**

(b) Give an account on the important constituent present in belladonna a drug active on nervous system.

(c) Write a short note on catechu a astringents.

OR

6 (a) Discuss the scope and therapeutic efficiency of colchicum a class of antirhematics. **11**

(b) Give an account with structures and therapeutic efficacy Vinca - a class of antitumor drug.

(c) Give short account on Tulsi as antitussive.
