

**B.Sc.-M.Sc. INTEGRATED PROGRAMME (TOXICOLOGY)
SEMESTER V, ONLINE EXAMINATION 2020
PAPER CODE - BTX-CC15TH**

PAPER TITLE: MEDICAL CHEMISTRY & DRUG DESIGNING

Time : Three Hours

Maximum Marks : 75

Attempt all questions. All parts of a question must be attempted in continuation. Start answer of a fresh question on a new page. Cite examples and draw labeled diagrams wherever necessary

Question No. 1:

Fill in the blanks:

[15 x 1 = 15]

- a) Testing antibacterials by measuring the growth of micro-organisms on a petri dish in their presence is a type of _____ test.
- b) _____ technique relies on the small molecules (drugs) having longer relaxation times than large molecules (targets) to study drug-receptor binding.
- c) _____ involves the synthesis of a large number of compounds using a standard synthetic route and so the types of structures that will be synthesised are predictable and belong to a similar family of compounds.
- d) Removal of flexibility of single bond from the lead compound is a _____ strategy of lead optimization.
- e) _____ is the study of structural features of a drug that are important to its biological activity.
- f) The study of how a drug interacts with its target binding site is called _____.
- g) Absorption, distribution, metabolism and excretion is abbreviated as _____.
- h) Cytochrome P450 enzymes are involved in the _____ of drugs in side the liver.
- i) _____ of a drug is the time taken for the concentration of drug in blood to fall by half.
- j) The administration of drug through injection into the spinal cord is known as _____.
- k) Epidermal growth factor is the messenger for _____ type of receptor.
- l) _____ is the amount of drug required to produce a defined biological effect
- m) Ras is an example of a class of signal protein called _____.
- n) Estrogen receptor is the example of _____ receptor.
- o) Alkylating agents contain _____ groups that react with nucleophilic centers on DNA.

Question No. 2:

Write short notes on any FIVE questions of the following:

[5 x 3 = 15]

- a) Enlist the types of weak interactions involved in drug-receptor binding
- b) Describe in short acid-base catalysis in enzyme catalysed reaction
- c) Explain the term efficacy using semilog graph
- d) Give Lipinski's rule of five
- e) What is sensitization of the receptor
- f) Describe antisense therapy
- g) What is First pass effect

Question No. 3:

Answer any THREE questions of the following :

[5 x 3 = 15]

- a) Discuss different types of enzyme inhibitors as drug
- b) Describe about the G-protein coupled receptors
- c) What is K_d ? How it is determined using Scatchard plot
- d) Describe Phase I and II of metabolism
- e) Describe the factors that must be considered to design antagonist

Question No. 4:

Answer any THREE questions of the following :

[5 x 3 = 15]

- a) Finding a lead compound
- b) Describe the simplification strategies used for lead optimization
- c) Describe the parameters in optimization of pharmacokinetic properties of drug
- d) What is prodrugs and its different types.
- e) Describe different phases of clinical trials

Question No. 5:

Answer any THREE questions of the following :

[5 x 3 = 15]

- a) Computer aided drug designing (CADD)
- b) Homology modeling
- c) Bioisosteres
- d) Virtual screening
- e) De novo drug design
- f) Drug discovery and development pipeline
- g) Role of proteomics in drug discovery

It should be noted that 40 minutes extra time will be provided to scan your answer sheets, build a PDF and uploaded it.