



JAS-1603220001030500 Seat No. _____

B. Sc. (Bioinformatics) (Sem. III) (CBCS) Examination

December - 2019

BI - 305 : Medicinal Chemistry

(New Course)

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- Instructions :** (1) All questions are compulsory.
(2) The right side figure indicates total marks of the question.

1 Attempt the following :

(A) Answer the following short questions : (All Compulsory) 4

- (1) _____ is the study of how drugs interact with a molecular target to produce a pharmacological effect, whereas pharmacokinetics is the study of how a drug reaches its target in the body and how it is affected on that journey.
- (2) Phase _____ metabolic reactions involve the addition of a highly polar molecule to a functional group. The resulting conjugates are more easily excreted.
- (3) _____ is the preferred method of administering drugs, but it is also the most demanding on the drug.
- (4) _____ is where the effect of a drug diminishes after repeated doses. In physical dependence a patient becomes dependent on a drug and suffers withdrawal symptoms on stopping the treatment.

(B) Answer Any **One** of the following questions : 2

- (1) Agonist & Antagonist
- (2) ADMET

(C) Answer Any **One** of the following questions : 3

- (1) Affinity, efficacy, and potency
- (2) Antisense therapy

- (D) Answer Any **One** of the following questions : 5
- (1) Receptors as drug targets
 - (2) Carrier proteins as drug targets

2 Attempt the following :

(A) Answer the following short questions : (All Compulsory) 4

- (1) The ability to crystallize a molecular target allows the use of _____ and _____ to design lead compounds which will fit the relevant binding site.
- (2) _____ has played a role in the discovery of new lead compounds.
- (3) _____ groups, such as alkyl halides, may result in irreversible covalent bonds being formed between a lead compound and its target.
- (4) The _____ summarizes the groups which are important in binding a lead compound to its target, as well as their relative positions in three dimensions.

(B) Answer Any **One** of the following questions : 2

- (1) The plant kingdoms are sources of medicine
- (2) SAR in drug optimization

(C) Answer Any **One** of the following questions : 3

- (1) Binding role of quaternary ammonium salts
- (2) How can we optimize drug by the ring variations ?

(D) Answer Any **One** of the following questions : 5

- (1) How can we optimize drug by the Rigidification of the structure ?
- (2) How can you design drugs to interact with more than one target ?

- 3 Attempt the following :
- (A) Answer the following short questions : (All Compulsory) 4
- (1) Introducing a metabolically susceptible N-methyl group can sometimes be advantageous in reducing _____.
 - (2) _____ with a similarity to important biosynthetic building blocks may be capable of crossing cell membranes with the aid of transport proteins.
 - (3) Prodrugs which are activated by light are the basis for _____ therapy.
 - (4) A _____ is a drug which is administered alongside another drug to enhance the latter's activity.
- (B) Answer Any **One** of the following questions : 2
- (1) Prodrugs to lower water solubility
 - (2) What are Self-destruct drugs ?
- (C) Answer Any **One** of the following questions : 3
- (3) Reducing toxicity
 - (4) Prodrugs masking drug toxicity and side effects
- (D) Answer Any **One** of the following questions : 5
- (1) Endogenous compounds as drugs
 - (2) Peptides and peptidomimetics in drug design
- 4 Attempt the following :
- (A) Answer the following short questions : (All Compulsory) 4
- (1) What are proto-oncogenes ?
 - (2) What are the five mechanisms of antibacterial actions ?
 - (3) Sulphonamides will block the bio-synthesis of what in the bacterial cell ?
 - (4) The principle of chemotherapy involves the design of chemicals which shows selective toxicity against the bacterial cell rather than a mammalian cell. True or false ?

- (B) Answer Any **One** of the following questions : **2**
- (1) HIV protease enzyme.
 - (2) Polymyxin B.
- (C) Answer Any **One** of the following questions : **3**
- (1) Inhibitors of cyclin-dependent kinase.
 - (2) Role of the antibody-drug conjugate in cancer therapy.
- (D) Answer Any **One** of the following questions : **5**
- (1) Explain vaccination against virus.
 - (2) Inhibitors of signalling pathways- Protein kinase inhibitors in cancer
- 5** Attempt the following :
- (A) Answer the following short questions : (All Compulsory) **4**
- (1) The somatic motor nerve carry message from the CNS to _____
 - (2) What are cholinergics ?
 - (3) What is anticholinergic ?
 - (4) What are anticholinesterases ?
- (B) Answer Any **One** of the following questions : **2**
- (1) Synthesis of N-alkylated morphine analogues
 - (2) Structure and properties of morphine
- (C) Answer Any **One** of the following questions : **3**
- (1) The adrenergic binding sites
 - (2) Gastric acid release
- (D) Answer Any **One** of the following questions : **5**
- (1) The cholinergic signaling system
 - (2) What are anti-ulcer agents ?