

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: M. PHARM
BRANCH: PHARMACY

SEMESTER: IInd
SESSION: SP/23

SUBJECT: MPL203T PRINCIPLES OF DRUG DISCOVERY

TIME: 3.00 Hours

FULL MARK: 75

INSTRUCTIONS:

1. The missing data, if any, may be assumed suitably.
 2. Before attempting the question paper, be sure that you have got the correct question paper.
 3. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
 5. Answer any five questions.
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- 1a. Enumerate the factors governing drug discovery process. What are the main sources of lead compounds in drug discovery? Elaborate with examples natural products as the source of lead. [7]
- 1b. What is drug design? Explain drug design through rational approach. [8]
- 2a. Define presystemic metabolism. Elaborate with suitable examples each of the factors affecting metabolism of drugs. [7]
- 2b. Illustrate the pathways involved in drug metabolism. Classify the types of drug metabolizing enzymes and explain their functions. Elaborate on the oxidative reactions in the light of metabolism with suitable examples. [8]
- 3a. Define prodrug, hard and soft drugs. Enumerate the characteristics and advantages of a prodrug approach in drug discovery. [7]
- 3b. Elaborate on the applications of the prodrug approach with suitable examples in drug discovery. [8]
- 4a. Define QSAR. Mention its utility with respect to biological activity. Elaborate on any two physicochemical parameters studied by the QSAR approach. [7]
- 4b. Elaborate the different steps of modern drug discovery process along with its timeline. [8]
- 5a. Define microarray technique. Elaborate DNA microarray along with its application in drug discovery process. [7]
- 5b. Define Targets. Explain the role of Genomics and Bioinformatics in target identification. [8]
- 6a. Describe different levels of protein structure. Explain Torsion angles and Ramchandran plot. [7]
- 6b. Elaborate on the Homology modelling for the prediction of protein structure. Compare the computation methods from experimental techniques for the prediction of protein structure. [8]
- 7a. Describe the principle of Antisense technology. Elaborate the application of antisense technology in target identification and validation. [7]
- 7b. Define the basic principal of XRD. Describe the application of XRD in Drug Discovery Process. [8]

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