

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

CLASS: M.Sc/PRE-PHD
BRANCH: BIOTECHNOLOGY

SEMESTER : III/I
SESSION : MO/2025

SUBJECT: BT504 MOLECULAR GENETICS & PHARMACOGENOMICS

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Before attempting the question paper, be sure that you have got the correct question paper.

		CO	BL
Q.1(a)	What do you mean by genome? Design steps to compare genomes of a human sub population.	[5] 4	6
Q.1(b)	Differentiate Pharmacogenetics and pharmacogenomics.	[5] 1	4
Q.2(a)	Design a method to identify the SNPs and haplotypes in target gene x from the samples collected from different tribes of Jharkhand.	[5] 4	6
Q.2(b)	Design steps to compare SNPs in a human sub population with respect to gene A.	[5] 3	6
Q.3(a)	Correlate dissociation constant of organic acids with QSAR based drug design.	[5] 1	5
Q.3(b)	Explain the process of drug design with involvement of structure.	[5] 1	2
Q.4(a)	'Polymorphism in transporter proteins in human body regulates pharmacokinetics and pharmacodynamics of the specific drug administered', Justify.	[5] 4	5
Q.4(b)	What do you mean by Multi Drug resistance gene? Illustrate polymorphism in MDR1 gene by using labelled diagram.	[5] 4	3
Q.5(a)	Draw the schematic labeled diagram of human respiratory system. Present biochemical basis of asthma treatment and critically examine the therapeutic variation of β_2 adrenergic agonists in different persons.	[5] 2	4
Q.5(b)	Show the metabolic pathway of ethanol in liver. List the effect of ethanol on brain. Relate variation of drug response in treatment of alcohol addiction with genetic variation.	[5] 2	4

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