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

CLASS: M.PHARM **SEMESTER: I**
BRANCH: PHARMACY **SESSION: MO/24**

SUBJECT: MPL104T CELLULAR AND MOLECULAR PHARMACOLOGY

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.

1a.	Define Gene Expression. Illustrate the steps at which gene expression can be modulated.	[7]
1b.	Describe the morphological changes in Apoptosis. Illustrate the Apoptotic pathway in detail.	[8]
2a.	Elaborate the role of cAMP as secondary messenger.	[7]
2b.	Define gene sequencing. Illustrate the methods for DNA sequencing.	[8]
3a.	Elaborate on pharmacogenomics application, genes, gene mutation, and types and causes of gene mutations.	[7]
3b.	Describe the cloning of disease genes and its medical application.	[8]
4a.	Write notes on the following: Genome, metabolome, proteome, proteomics, genomics, metabolomics, and nutrigenomics.	[7]
4b.	Define microarray and elaborate on microarray analysis of any given sample.	[8]
5a.	Highlight the role of different forms of chemical signaling found in multicellular organisms.	[7]
5b.	Illustrate the function of ion channel receptor in the light of any physiological event.	[8]
6a.	Illustrate the role of EGFR/MAPK pathway in inducing the kinase cascade.	[7]
6b.	Elaborate the role of JAK-STAT pathway. How this pathway could be shunted or halted?	[8]
7a.	Describe the mechanism and functions of siRNA. Differentiate siRNA from miRNA.	[7]
7b.	Draw a graph showing normal cell growth in a culture. Describe the general guidelines for an animal cell culture.	[8]

::::::12/12/2024::::::M