

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

**CLASS: M.PHARM
BRANCH: PHARMACY**

**SEMESTER: I
SESSION: MO/22**

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. Describe various steps for regulation of gene expression. | [7] |
| 1b. Differentiate apoptosis and necrosis. Describe apoptotic pathways in detail. | [8] |
| | |
| 2a. Differentiate siRNA and microRNA. Add a short note on Gene silencing. | [7] |
| 2b. Describe different check points in the cell cycle. Explain the role of cyclin/cdks in regulation of cell cycle. | [8] |
| | |
| 3a. Describe the chain termination method for DNA sequencing. | [7] |
| 3b. Illustrate the role of nucleases in molecular biology. Add a short note on restriction endonucleases. | [8] |
| | |
| 4a. How recombinants are selected based on Lac selection? | [7] |
| 4b. Discuss the principle and process of SDS-PAGE. | [8] |
| | |
| 5a. Illustrate the principle and process of Gel Electrophoresis. | [7] |
| 5b. Elaborate the factors of performing an optimal PCR reaction. | [8] |
| | |
| 6a. What are the differences between lambda DNA and M13 DNA? Cite an example of using M13 DNA used in genetic engineering. | [7] |
| 6b. Elaborate the detection methods used in blotting techniques. | [8] |
| | |
| 7a. Describe the growth kinetics of cells during cell culture. Explain the steps for the culture of adherent cell lines. | [7] |
| 7b. Define cryopreservation. Describe the steps for cryopreservation. | [8] |

:::24/11/2022:::E