M.Sc. Molecular Biology & Human Genetics (Semester-III)

May 2023 Examination

Time : 3 Hrs.   [Max. Marks: 100]

Medical Genetics

Q.P Code: M3580
Your answers should be specific to the questions asked.
Draw neat labelled diagrams wherever necessary.

Long Essay   **2X20=40 Marks**

1. Define prenatal testing, different type of sampling procedures and indications for prenatal testing

2. List various molecular tests available, and describe PCR-RFLP and sanger sequencing with suitable examples

Short Essay   **6X10=60 Marks**

3. Describe monogenic and polygenic disorders with examples

4. Describe the ethical legal issues involved in genetic testing

5. Define chromosomal disorder and discuss the classification of chromosomal disorders

6. Describe the principle of FISH and list various FISH techniques

7. Explain the salient features of ISCN classification

8. Describe the attributes of mitochondrial inheritance and list few mitochondrial disorders

M.Sc. Molecular Biology & Human Genetics (Semester-III)

May 2023 Examination

Time: 3 Hrs.   [Max. Marks: 100]

Molecular Biology Techniques
Q.P Code: M3590
Your answers should be specific to the questions asked.
Draw neat labelled diagrams wherever necessary.

Long Essay   **2X20=40 Marks**

1. Explain the principle of real-time polymerase reaction, it advantages and applications.
2. Define cell sorting. Explain the principle of Fluorescence Activated Cell Sorting and list its applications.

Short Essay   **6X10=60 Marks**

3. Explain the principle of multiplex and nested polymerase chain reaction and mention their applications.
4. Explain the principle of protein precipitation by organic solvents. Name any 2 commonly used organic solvents.
5. Explain the principles of protein sequencing by Edman's method.
6. Explain the principle and applications of multiplex ligation dependent probe amplification technique (MLPA).
7. Distinguish between NTP, dNTP and ddNTP along with their structures.
8. Define excitation and emission spectrum. Draw emission and excitation spectra of fluorescein isothiocyanate.

Time: 3 Hrs.   **[Max. Marks: 100]**

Research Methodology and Biostatistics

Q.P Code: M3600
Your answers should be specific to the questions asked.
Draw neat labelled diagrams wherever necessary.

LONG ESSAY   **2 X 20 = 40 Marks**

1. Describe the salient features of EMBASE
2. a) What is non-probability sampling? Discuss any four important methods of probability sampling with examples.
   b) The following data is on Haemoglobin Levels of school children? Construct a Histogram and polygon and interpret.

Hb %	No. Students
6-8	42
8-10	62
10-12	51
12-14	10
More than 14	3

SHORT ESSAY   **6X 10 = 60 Marks**

3. Explain the salient features of meta-analysis.
4. Explain the significance of Boolean operators in electronic literature search.
5. Explain the salient features of Good Clinical Practice.
6. What is dispersion? Explain any 4 measures of dispersion and mention their uses.
7. What are parametric test of significance? Discuss any one test with example.
8. Classify variables with examples and suggest suitable scales of measurement.