

**THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY**

**[MD 0723]**

**JULY 2023**

**Sub. Code: 2044**

**(MAY 2023 EXAM SESSION)**

**M.D. DEGREE EXAMINATION**

**BRANCH XIII – BIOCHEMISTRY**

**PAPER II – CELL PHYSIOLOGY, MOLECULAR BIOLOGY AND  
HUMAN GENETICS**

*Q.P. Code: 202044*

**Time: Three Hours**

**Maximum: 100 Marks**

**I. Essay Questions: (2 x 15 = 30)**

1. Describe in detail the types and procedure of Gene therapy. Add a note on the advantages and disadvantages of different Vectors used.
2. Describe in detail the steps in synthesis of mRNA and its modifications.

**II. Short notes: (10 x 5 = 50)**

1. Catalytic antibodies.
2. Cyclins and their regulators.
3. Antibiotics as inhibitors of Transcription.
4. Restriction maps.
5. Genetic Cancer Syndromes.
6. Microarrays.
7. DNA repair mechanisms.
8. Chromosomal translocation.
9. DNA fingerprinting.
10. Microsatellite instability disorders.

**III. Reasoning Out: (4 x 5 = 20)**

1. Fidelity of gene is conferred by aminoacyl tRNA synthetases. Justify.
2. Sequencing the centromere region of DNA is the major challenge.
3. Satellite polymorphism can be used for solving paternal disputes.
4. P53 is described as “Guardian of the Genome”.

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