[LJ 1016] OCTOBER 2016 **Sub. Code: 0403**

FELLOWSHIP IN MEDICAL GENETICS EXAMS
FIRST YEAR
PAPER III – MOLECULAR GENETICS

Q.P. Code :230403

Time : Three hours **Maximum : 100 Marks**

I. Elaborate on: **(2 x 20=40)**

1. Discuss the classes of mutations that lead to disease. What are the mechanisms by which mutation cause disease?

2. What are the current developments and future prospects for gene therapy for treatment of inherited or acquired disease?

II. Write notes on: **(10 x 6 = 60)**

1. Single nucleotide polymorphism.
2. Restriction fragment length polymorphism.
3. Reverse transcritase PCR – (RT-PCR).
4. Arms – amplification refractory mutation system.
5. Multiplex PCR – M-PCR.
6. Gonadal mosaicism.
7. Molecular basis of breast cancer.
8. Limitations of DNA markers in gene mapping.
9. Molecular diagnosis of Haemoglobinopathies.
10. Draw a diagrammatic representation of a PCR laboratory.

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[LL 1017] OCTOBER 2017 **Sub. Code: 0403**

FELLOWSHIP IN MEDICAL GENETICS EXAMS
FIRST YEAR
PAPER III – MOLECULAR GENETICS

Q.P. Code: 230403

Time: Three hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. What is cloning? What are the various types of cloning? What are the merits and demerits of cloning? Write a note on the ethical issues involved in cloning.

2. Describe the various methods of diagnosis that can be employed to arrive at a targeted gene therapy aimed at treating an inborn metabolic error.

II. Write notes on: **(10 x 6 = 60)**

1. CRISPR-Cas9.
2. Spectral karyotype imaging.
3. Next generation sequencing.
4. Oncogenes and its mechanisms.
5. Microarray for diagnosis.
6. Evolution of molecular diagnosis in leukemia.
7. Genetic basis of Fragile X syndrome and molecular diagnosis and management.
8. Genomic imprinting and uniparental disomy.
9. Debate on the advantages and disadvantages of Human Genome Project.
10. Stem cell research and clinical translation.

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