(LC 149) **APRIL 2013** **Sub. Code: 2044**

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 : **(2x10=20)**

1. Write a note on the regulation of gene expression in eukaryotes.
2. Describe the mutations affecting membrane proteins. Add a note on cystic fibrosis.

II. Short Questions: **(8x5=40)**

1. Brief on Passive transport
2. Define Southern blot technique
3. Genetic basis of Myasthenia gravis
4. Define Psuedogenes
5. Processing of primary transcript to mRNA
6. What are Vectors?
7. Brief on the Double strand break repair mechanism.
8. Biochemical basis of Paroxysmal Nocturnal Hemoglobinuria

III. Reasoning Out: **(4x5=20)**

1. p53 is one of the most frequently mutated genes in human cancer.
2. In human mitochondrial DNA mutations, only the daughters transmit the disease trait.
3. Centromere is an essential structure for chromosomal segregation during mitosis.
4. Satellite polymorphisms can be used for solving paternal disputes.

IV. Very Short Answer: **(10x2=20)**

1. What is RT-PCR ?
2. What enhances the product yield in an Expression Vector ?
3. What is the DNA insert size of cosmids?
4. Significance of Calnexin
5. Action of Botulinum B toxin
6. What are Single strand binding proteins?
7. Significance of Gap junctions.
8. Define Operator locus.
9. Clinical significance of Fibronectin
10. Contents of lysosomes

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