

(LF 149)

OCTOBER 2014

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 Questions:

(2 x 10 = 20)

1. What are the steps of translation? What are the post translation modifications?
Add a note on inhibitors
2. Describe in detail the various transport mechanisms operating in a cell.

II. Short Questions:

(8 x 5 = 40)

1. Cell cycle and its regulation.
2. Ames Assay.
3. Molecular basis of antibody diversity.
4. Trinucleotide repeat expansions mutation disorders.
5. Explain alternative splicing of mRNA with an example.
6. Peroxisomes – functions and disorders associated with abnormalities of its functions.
7. *RBI* gene & its role in tumorigenesis.
8. Biochemistry of blood group antigens.

III. Reasoning Out:

(4 x 5 = 20)

1. Why *p53* gene is sometimes called a ‘molecular policeman’?
2. All inherited disorders cannot be considered as potential candidate diseases for gene therapy. Why?
3. Patients receiving long term methotrexate as part of cancer chemotherapy develop resistance to it. Why?
4. Wobble and Degeneracy of genetic code is a protective mechanism in a cell. Explain.

IV. Very Short Answers:

(10 x 2 = 20)

1. Role of Snurps.
2. Epoxide hydrolase.
3. Fanconi syndrome
4. Suppressor tRNA molecules.
5. Types and function of eukaryotic DNA polymerases.
6. Molecular basis of *C.diphtheriae* toxicity.
7. Antisense therapy.
8. Hardy-Weinberg equilibrium.
9. Topoisomerases and their role in a cell.
10. Functions of different arms of tRNA.
