

2012**M.Sc.****3rd Semester Examination****BIOCHEMISTRY****PAPER—BIC-303**

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

(Gene and Gene Regulation)**Group—A**

1. Answer any five from the following : 5×2
- (a) What is alternate intron splicing?
 - (b) Mention the genetic basis of Down's Syndrome.
 - (c) What is c-value paradox. What is its significance.

(Turn Over)

- (d) What are orphan nuclear receptors? Working principle?
- (e) What is gene targeting? How it is advantageous over non specific insertion?
- (f) What is SNPs? Give one specific example.
- (g) What is the genetic basis of sex dimorphism? Give one example.
- (h) What is 'antibody micro-assay'? How it is utilized?

Group—B

Answer any *two* from the following :

2×5

2. What is Karyotyping? Mention the differences between trisomy and monosomy with example.
3. (a) Mention the possible adaptive/ecological significance of variation of ploidy.
- (b) Mention homoploidy and aneuploidy with example.
4. (a) What is exon suffling?
- (b) Describe with example the genetic recombination at somatic level.

2+3

2+3

5. Describe different technique of gene transfer process in cultured human cells.

5

Group—C

Answer any two from the following : 2×10

6. (a) What important tools and techniques are used in proteomics research ?
- (b) What is SINEs and LINEs? What are the evolutionary significance ?
- 4+6
7. (a) What is the function of HAT? How it is regulated at the time of cell cycle process ?
- (b) How transgenic animal can disturb ecological gene-pool ?
- 6+4
8. (a) Discuss with diagram of Mendel's experiments on the segregation of two genes and describe character expression upto F_2 generation.
- (b) What is a gene knockout mice? Briefly outline its preparation.

6+4

9. (a) Briefly mention the steps of sex determination process in human.
- (b) What is an 'imaginal disc'? How the dorsal-ventral axis of drosophila is formed?

5+5
