

**2013**

**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.*

*Answer all questions.*

**Group—A**

1. Answer any *five* questions from the following : 2×5
  - (a) What is the difference between 'hormone receptor' and 'nuclear hormone receptor'? Give example.
  - (b) What is 'transgenesis' process?
  - (c) What is a 'satellite' DNA? What is the difference between its micro and mini form?
  - (d) What is 'supergene'? How far is it informative?

*(Turn Over)*

- (e) What are 'genetic polymorphism' and 'length polymorphism' ?
- (f) Write the chromosomal basis and manifestations of Klinefelter syndrome and Turner syndrome.
- (g) How many different genes and proteins are there in human cells ?
- (h) Define an 'imaginal disc' with example.

### Group—B

Answer any *two* questions from the following : 5×2

- 2. Mention the important roles of large 'non-informative' sequences of human DNA. 5
- 3. Describe 'alternate intron splicing' and 'alternate polyadenylation' processes in regulation of gene expression. 5
- 4. Describe 'Linkage map' and its use. 5
- 5. How does 'histone deacetylase' act in Chromatin packaging and gene expression ? 5

**Group—C**

Answer any two questions from the following : 10×2

6. (a) What are the differences between structural and functional genomics? Elaborately distinguish with example.
- (b) What is a 'metabolome'?
- (c) How is the pharmacognomic study important in medicinal industry? 7+1+2
7. (a) What are the differences between 'basal level' and 'specialized' transcription factors?
- (b) Discuss Mendel's experiment on character expression upto F2 generation. 4+6
8. (a) Discuss antisense technology used in gene silencing.
- (b) Describe on 'nuclear orphan' receptor. What is INDEL? 5+(3+2)
9. (a) Briefly describe the steps of sex determination process of *Drosophila*.
- (b) How are the maternal characters inherited by extra-nuclear pathway? 5+5
-