



**HEG-003-1141002** Seat No. \_\_\_\_\_

**M. Sc. (Botany) (Sem. I) (CBCS) Examination**  
**November / December – 2017**  
**BOT-102 : Molecular Biology, Genetics & Evolution**

**Faculty Code : 003**  
**Subject Code : 1141002**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

- 1** Answer the following : (Any **Seven**) **2×7=14**
- (a) What are alleles ? Define with suitable examples.
  - (b) Define F1 generation.
  - (c) What is speciation?
  - (d) What is linkage?
  - (e) What is RNA? How it differs from DNA?
  - (f) What is Chargaff's rule.
  - (g) Define coacervates
  - (h) Define crossing over and its characteristics.
  - (i) What is induced mutation?
  - (j) Why DNA replication is called semi-conservative?
- 2** Write short notes on any **two** of the following : **2×7=14**
- (a) Law of segregation in Mendelian genetics
  - (b) Hardy-Weinberg genetic equilibrium
  - (c) Theories of organic evolution
- 3** Briefly describe : **2×7=14**
- (a) C-value paradox
  - (b) Significance of the DNA methylation

**OR**

- 3** Briefly describe : **2×7=14**
- (a) Linkage and genetic mapping
  - (b) Structure of nucleic acids
- 4** Write an essays on the following : **2×7=14**
- (a) Genetic code
  - (b) Natural selection
- 5** Write short notes on any **two** of the following : **2×7=14**
- (a) DNA damage and repair
  - (b) Spontaneous mutations
  - (c) Process of transcription
  - (d) Extra chromosomal inheritance
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