

BS/2111
GENETICS–BHB-12
(Semester–III)

Time : Three Hours]

[Maximum Marks : 74

Note : Attempt *two* questions each from Section A and B of the question paper and the entire Section C.

SECTION–A (11 marks each)

- I. Draw a well labelled diagram showing important phases of mitotic cell division.
- II. Explain the law of independent assortment using suitable examples.
- III. Write a well-illustrated note on the composition and the role of repetitive DNA in eukaryotic genomes.
- IV. Describe the concepts of cistron, exon and intron using suitable examples.

SECTION–B (11 marks each)

- V. What are gene mutations ? Explain important types of mutations and their causes.

- VI. What are chromosomal abnormalities and their implications in context to evolution ?
- VII. Write down important methods used for the detection of allelic and genotypic frequencies.
- VIII. Explain evolutionary genetics and the theory of natural selection.

SECTION-C (2 marks each)

- IX. Write short notes on the following :
- (a) Definition of genetics.
 - (b) Monohybrid cross.
 - (c) Incomplete dominance.
 - (d) Pseudo allele.
 - (e) Telomere DNA.
 - (f) SINEs.
 - (g) VNTRs.
 - (h) Karyotyping.
 - (i) Implications of translocation mutagenesis.
 - (j) Aneuploidy.
 - (k) Barr bodies.

- (l) X-linked inheritance.
 - (m) Genetic recombination.
 - (n) Cytoplasmic inheritance.
 - (o) Evolutionary genetics.
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