

BACHELOR OF SCIENCE (BIOTECHNOLOGY) (2010 COURSE)
T.Y.B.Sc. (Biotechnology) Sem-V : WINTER :- 2021
SUBJECT: GENETICS

Day : Monday
Date 7/2/2022

W-6283-2021

Time : 02:00 PM-05:00 PM
Max. Marks: 80

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw Diagram **WHEREVER** necessary.
- 4) Answers to both the sections should be written in **SEPARATE** answer books.

SECTION - I

- Q.1** a) Answers any **ONE** of the following (06)
- i) Explain steps involved in karyotyping
 - ii) Explain structure of polytene chromosome
- b) Attempt any **TWO** of the following (10)
- i) Describe importance of genetics in plant breeding.
 - ii) Explain FISH and its applications.
 - iii) Write the structure of a chromosome.
- Q.2** Write short notes on any **FOUR** of the following (16)
- i) Importance of Mendel's study in science
 - ii) Y-linked inheritance
 - iii) Cytoplasmic inheritance
 - iv) Infective particles
 - v) Co-operative epistasis

SECTION - II

- Q.3** a) Answers any **ONE** of the following (06)
- i) Define linkage. Explain it with suitable example.
 - ii) What is chromosomal aberration? Explain numerical aberrations.
- b) Attempt any **TWO** of the following (10)
- i) Explain 'Jumping Genes'.
 - ii) What is genetic variation? Explain the difference between continuous and discontinuous variation.
 - iii) Write the importance of *C. elegans* as a model organism.
- Q.4** Write short notes on any **FOUR** of the following (16)
- i) SNP
 - ii) Dosage compensation
 - iii) ABO blood groups
 - iv) Evolution
 - v) Hardy – Weinberg equilibrium
- Q.5** Solve all **EIGHT** questions. (16)
- i) What is prenatal diagnosis?
 - ii) What are alleles?
 - iii) What is test cross?
 - iv) What is genetic drift?
 - v) What is translocation?
 - vi) SRY Gene
 - vii) What is RFLP?
 - viii) Write law of dominance