বিদ্যাসাগর বিশ্ববিদ্যালয়

VIDYASAGAR UNIVERSITY

Question Paper

B.Sc. Honours Examinations 2020

(Under CBCS Pattern)

Semester - III

Subject: BOTANY

Paper : C 7-T & C 7-P

(Genetics)

Full Marks : 60 (Theory - 40 + Practical - 20)

Time : 3 Hours

Candidates are required to give their answers in their own words as far as practicable.
The figures in the margin indicate full marks.

C 7-T [Theory]

Answer any ***two*** questions from the following : $2 \times 20 = 40$

1. i. Write short notes on multiple alleles, lethal alleles and pleiotropy.

   ii. Write down the chromosomal theory of inheritance.

   iii. Discuss the ClB method for detection of mutations. 9+5+6

2. i. Write down the chloroplast mutation as detected in four o'clock plants and mitochondrial mutation expressed in yeast.

   ii. Write the molecular basis of crossing over. (5+5)+10

3. i. Briefly discuss about the different types of chromosomal aberrations w.r.t. deletion, duplication, inversion, and translocation.

   ii. Differentiate test cross and back cross. Discuss the three point test cross.

   iii. Write the different modes of DNA repair mechanisms found in eukaryotic cell. 8+(2+4)+6

4. i. Write short notes on genetic drift, genetic variation and speciation.

   ii. Briefly discuss about the structure rII Locus of T4Phage. 12+8

C 7-P [Practical]

Answer any ***one*** questions from the following : 1 × 20 = 20

1. i. Describe the process of pretreatment, fixation, staining, squash and smear preparation.

   ii. Write the process for pre-treatment and staining for study of Mitosis in onion. 10+10

2. i. Discuss the process of pedigree analysis for dominant and recessive autosomal traits.

   ii. Discuss about the incomplete dominance and gene in interaction through seed ratio study. 10+10

3. i. Mention the identifying characters for study of aneuploidy w.r.t. Down's, Klinefelter's and Turner's syndromes.

   ii. Mention the identifying characters for Translocation Ring and Laggards. 12+8