UNIVERSITY OF NORTH BENGAL
B.Sc. Honours 3rd Semester Examination, 2023

CC7-BOTANY

GENETICS

Time Allotted: 2 Hours   Full Marks: 40

The figures in the margin indicate full marks.

GROUP-A

1. Answer any *five* questions from the following: 1×5 = 5
   (a) Define epistasis.
   (b) What is intercalating agent?
   (c) What do you mean by Law of Dominance?
   (d) What is test cross?
   (e) What is plasma gene?
   (f) Who coined the term mutation?
   (g) What is mitochondrial petite?
   (h) What is silent mutation?

GROUP-B

2. Answer any *three* questions from the following: 5×3 = 15
   (a) Write short note on: Penetrance and Expressivity. $2\frac{1}{2} + 2\frac{1}{2}$
   (b) Distinguish between— $2\frac{1}{2} + 2\frac{1}{2}$
       (i) Paracentric and Pericentric inversion
       (ii) Euploidy and Aneuploidy
   (c) Discuss maternal effects taking example of shell coiling in snail.   5
   (d) Discuss the cytological basis of crossing over.   5
   (e) What is three-point test cross? Write short note on polygenic inheritance.   1+4

GROUP-C

3. Answer any *two* questions from the following: 10×2 = 20
   (a) What is translocation heterozygote? Discuss the meiotic behaviour of the   2+8
       translocation heterozygote.
   (b) Write an account on the ClB method of detection of mutation. Discuss the role of   7+3
       transposon in mutation.
   (c) What is allele frequency and genotype frequency? Write the chromosome theory   2+3+5
       of inheritance. With an example define incomplete dominance.
   (d) Give an account on Cis-trans complementation test. Discuss the five structure of   2+8
       gene with reference to rII locus in T_4-bacteriophages.

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