2021

BOTANY — HONOURS

Paper : CC-10

(Genetics)

Full Marks : 50

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

1. Answer *any five* questions from the following: 2×5

   (a) What is Robertsonian Translocation?

   (b) What happens when an autopolyploid is crossed with its parent?

   (c) What is the function of RuvAB proteins?

   (d) What is spliceosome?

   (e) What are the characteristics of Polygenic Inheritance?

   (f) What are the full forms of GISH and FISH?

   (g) What is overlapping gene? Give an example.

   (h) Mention the dihybrid ratio of Dominant and Recessive epistasis.

2. Answer *any two* questions from the following:

   (a) Explain the ABCE quartet model of flower development. 5

   (b) What is transposon? Explain the Ac-Ds system in maize. 1+4

   (c) Briefly describe the detection of crossing over with the help of McClintock's experiment. 5

   (d) What are palindromes? Briefly discuss the different types of Tandem Repeats. 1+4

3. Answer *any three* questions from the following:

   (a) What is tautomerism? How tautomeric shifting cause point mutation? 2+8

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(b) (i) A plant heterozygous for three gene pairs CshWx/cShwx was crossed to cshwx/cshwx and the progenies obtained were classified as follows:

CshWx-2777

cShwx-2708

CShwx-116

cshWx-123

Cshwx-643

cShWx-626

CShWx-4

cshwx-3

Draw a linkage map showing the gene order and the distances between the three loci.

(ii) Differentiate between Co-efficient of interference with co-efficient of coincidence. 8+2

(c) Describe in brief the mechanism of nucleotide excision repair and mismatch repair. 5+5

(d) (i) Enumerate the origin of amphidiploids. State its importance.

(ii) Describe how base analogue incorporation and deamination cause mutation. (3+2)+(2½+2½)

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