U.G. 6th Semester Examination-2022

BOTANY

[HONOURS]

Course Code : BOT-H-CC-T-13

(Genetics)

Full Marks : 40   Time : $2\frac{1}{2}$ Hours

The figures in the right-hand margin indicate marks.

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

1. Answer any **five** of the following questions: 2×5=10

   a) Differentiate between Hypostasis and Inhibitory factor.

   b) Comment on 'Central Dogma Reverse'.

   c) What are allelic and non-allelic genes?

   d) Define Pleiotropy.

   e) Mention two important criteria for Mendelian inheritance.

   f) What is holandric gene? What is the significance of such gene?

   g) Differentiate between overlapping genes and polygenes.

   h) What is codon? Which base of it is the most important for its functionality?

[Turn Over]

2. Answer any **two** questions of the following: 5×2=10

   a) Explain with suitable diagrams the types of translocation.

   b) Differentiate between B-DNA and Z-DNA.

   c) Comment on aneuploidy.

   d) Write down Hardy-Weinberg equilibrium Law and comment on it from the perspective of population genetics.

3. Answer any **two** of the following questions:

   10×2=20

   a) Define Operon. What are the types of Operon? Describe the functional aspect of Lactose Operon.   1+2+7=10

   b) What is mutagen? Explain the effects of any three different types of chemical mutagens. 1+9=10

   c) What is non-allelic gene interaction? Explain the difference between dominant epistasis and recessive epistasis with the help of suitable diagrammatic representations and examples.
   1+9=10

   d) What are 'cis' and 'trans' orientations of genes? Explain rll locus in connection with fine structure of gene.   2+8=10

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