

2022

BOTANY

[Honours]

(B.Sc. Fourth Semester End Examination-2022)

PAPER-C8T

Full Marks: 40

Time: 02 Hrs

The figures in the right hand margin indicate marks

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

Illustrate the answers wherever necessary

MOLECULAR BIOLOGY

- 1. Answer any FIVE question: 5 x 2=10**
- a) What do you mean by heteropyknosis? Mention some major inhibitors of Protein synthesis.
 - b) What is the role of ribozyme? Give an example.
 - c) Name two heat shock proteins and two peptide hormones.
 - d) Define cot curve. What is meant by semiconservative nature of DNA.
 - e) Distinguish between constitutive & facultative heterochromatin.
 - f) What is the role of Kornberg's enzyme? What is rolling circle mechanism.
 - g) Differentiate between monocistronic & polycistronic transcription unit.

(2)

- h) What is meant by post transcriptional modification of protein?
What are different transcriptional factors found in Eukaryotes.

2. Answer any FOUR of the following: $4 \times 5 = 20$

- a) Write short notes on: $2.5 + 2.5$
- i. Adaptor hypothesis
 - ii. Regulation of tryptophan synthesis in *E. coli*
- b) Draw and describe the spliceosome machinery. What is RNA editing? $(3+1) + 1$
- c) Define micro RNA. Mention in brief the functions of different types of RNAs. $1+4$
- d) Give a comparative account of ribosome biogenesis in eukaryotes and prokaryotes. 5
- e) Discuss Fraenkel-Conrat's experiment with suitable illustrations. 5
- f) Draw and describe chloroplast DNA. $3+2$

3. Answer any ONE question: $1 \times 10 = 10$

- a) Justify that the genetic code is non-overlapping. Explain the degeneracy of genetic code. How many stop signals are there in the genetic code? $4+3+3$
- b) Distinguish between A-, B-, and Z- DNA with suitable diagrams. Draw and discuss the Θ (theta) mode of replication.

$6+4$