

**2024/TDC (CBCS)/EVEN/SEM/
BOTHCC-401T/030**

TDC (CBCS) Even Semester Exam., 2024

BOTANY

(4th Semester)

Course No. : BOTHCC-401T

(Molecular Biology)

Full Marks : 50

Pass Marks : 20

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

UNIT—I

- 1. Answer any two questions : 2×2=4**
- (a) Write a short note on constitutive heterochromatin.
- (b) Write a short note on facultative heterochromatin.
- (c) What is cot curve?
- 2. (a) Write a note on organization of eukaryotic DNA with diagram (include histones and nucleosomes in your note). 6**

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(Turn Over)



(2)

Or

- (b) Describe the Hershey-Chase experiment in detail with diagram. 6

UNIT—II

3. Answer any *two* questions : 2×2=4
- (a) What is replication?
- (b) What is SSB protein?
- (c) What is proofreading function of DNA polymerase?
4. (a) Write a detailed note on θ (theta) mode of replication. 6

Or

- (b) Write a broad note on various enzymes and their functions involved in DNA replication. 6

UNIT—III

5. Write short notes on any *two* : 2×2=4
- (a) Transcription
- (b) Reverse transcription
- (c) Gene silencing

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(Continued)

(3)

6. (a) What is operon? Write in detail about Lac operon. 1+5=6

Or

- (b) Write short notes on the following : 3+3=6
- (i) Heat shock proteins
- (ii) Transcription factors

UNIT—IV

7. Answer any *two* questions : 2×2=4
- (a) Define intron.
- (b) Define exon.
- (c) What is 3' polyA tail?
8. (a) Describe the process of removal of introns via spliceosome machinery. 6

Or

- (b) Write short notes on the following : 3+3=6
- (i) Alternative splicing
- (ii) Ribozymes

UNIT—V

9. Answer any *two* questions : 2×2=4
- (a) Write a short note on tRNA.
- (b) What is reading frame?

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(4)

(c) Write a short note on fidelity of translation.

10. (a) Write in detail about the various post-translational modifications (PTM) of proteins. 6

Or

(b) Write in detail about the initiation of translation with diagram (include various initiation factors). 4+2=6

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