

TDC (CBCS) Even Semester Exam., 2022

BOTANY

(Honours)

(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*

SECTION—A

Answer any *ten* questions of the following : 2×10=20

1. What do you mean by DNA denaturation and renaturation?
2. What is nucleosome? Write its function.
3. What do you mean by Cot curve?
4. Write the functions of DNA polymerase I and DNA polymerase II.

5. What is primer? Write the importance of a primer.
6. Write the role of helicase and topoisomerase in DNA replication.
7. What do you mean by stop codon? Name the stop codons.
8. Write the role of ribosome in protein synthesis.
9. What is transcription factor? Give one example.
10. What is cistron? What do you mean by polycistronic mRNA?
11. What do you mean by intron and exon?
12. Capping of mRNA occurs at which end? Which enzyme helps in joining of exons?
13. Name two inhibitors of protein synthesis.
14. What is peptide bond? How is it formed?
15. Write one function each of mRNA and tRNA in protein synthesis.

SECTION—B

Answer any five questions of the following : $6 \times 5 = 30$

16. "DNA is a genetic material." Explain with suitable examples.
17. Differentiate between euchromatin and heterochromatin. Add a note on constitutive and facultative heterochromatin.
18. With the help of suitable sketches, describe the process of unwinding of DNA and initiation of DNA replication.
19. Write notes on the following :
 - (a) Semiconservative method of DNA replication
 - (b) Rolling circle model of DNA replication
20. Write a note on regulation of lactose operon. What are repressor proteins?
21. With the help of suitable model, describe the process of transcription.
22. What is spliceosome? Discuss the mechanism of splicing.

23. Write notes on the following :
 - (a) Split gene
 - (b) mRNA processing
24. With the help of neat sketches, describe the structure of ribosome. What is polyribosome?
25. Write a note on post-translational modification of proteins.
