2023/TDC(CBCS)/ODD/SEM/
ZOOHCC-501T/033

TDC (CBCS) Odd Semester Exam., 2023

ZOOLOGY

(Honours)

(5th Semester)

Course No. : ZOOHCC-501T

(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 *ten* questions, selecting any *two* from each Unit : 2×10=20

UNIT—I

1. What are purines and pyrimidines?

2. How is template strand different from coding strand?

3. What is rRNA?

UNIT—II

4. Distinguish between prokaryotic and eukaryotic DNA replication.

5. What is the role of RNA in DNA replication?

6. What are telomeres? Mention the biological significance of the enzyme telomerase.

UNIT—III

7. What is concensus sequence? Give example.

8. Name the different subunits of RNA polymerase in prokaryotes.

9. What is meant by the terms 'upstream' and 'downstream'?

UNIT—IV

10. Define triplet code.

11. Mention the different components of large and small subunits of a prokaryotic ribosome.

12. What is charging of tRNA?

UNIT—V

13. What are split genes?

14. What is alternative splicing?

15. Name the enzymes that are produced by structural genes in lac operon.

SECTION—B

Answer *five* questions, selecting any *one* from each Unit : 6×5=30

UNIT—I

16. Give an account of Watson and Crick's model of double-stranded DNA with proper diagram. 4+2=6

17. Write short notes on the following : 3+3=6

(a) Types of RNA and their functions

(b) Euchromatin and heterochromatin

UNIT—II

18. What is replication? Describe the mechanism of replication in prokaryotes with diagram. 1+4+1=6

19. What are Okazaki fragments? Briefly discuss various enzymes involved in DNA replication. 2+4=6

UNIT—III

20. What is transcription? Define transcription unit. Describe the process of initiation of transcription in prokaryotes with diagram. 1+2+3=6

21. Write short notes on the following : 3+3=6

(a) Types of RNA polymerases of eukaryotes and their function

(b) Transcription factor

UNIT—IV

22. Which are non-sense codons? Discuss the general properties of the genetic code. 1+5=6

23. Give an account of the process of translation in prokaryotes with proper illustration. 4+2=6

UNIT—V

24. What is the role of activators in transcription? Briefly discuss the principles of transcriptional regulation in prokaryotes. 1+5=6

25. Write short notes on the following : 3+3=6

(a) Exon shuffling hypothesis

(b) trp operon

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