K16U 0564

IV Semester B.Sc. Degree (CBCSS – 2014 Admn. – Regular)
Examination, May 2016
GENERAL COURSE IN MICROBIOLOGY
4A13 MCB : Molecular Biology

Time : 3 Hours

Max. Marks : 40

SECTION – A

Answer **all** questions. **Each** question carries **1** mark.

1. Anticodons are present in _____ molecules.

2. During DNA replication, the lagging strand synthesizes DNA in short pieces called _____

3. The enzymes responsible for the linking of tRNAs and amino acids collectively called _____

4. RNA viruses carrying reverse transcriptase enzyme are called _____   (4×1=4)

SECTION – B

Answer **any 7** questions. **Each** question carries **2** marks.

5. What is the difference between introns and exons ?

6. What is the importance of 3′ – 5′ exonuclease activity of DNA polymerase ?

7. Name the different types of RNA molecules and their biological functions.

8. Write a brief account on nucleosomes.

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9. Differentiate template strand from coding strand.

10. Why genetic code is called degenerate ?

11. What are promoters ?

12. What is an operon ?

13. Why mRNA splicing is required in eukaryotes ?

14. What are topoisomerases ?

(7×2=14)

SECTION – C

Answer **any four** questions. **Each** question carries **3** marks.

15. Who proposed cloverleaf model of tRNA ? Describe the structure.

16. Explain Meselson – Stahl experiment.

17. Why are post-translational modifications of proteins required ? Mention any two such modifications.

18. Give an account of the enzymes and proteins involved in DNA replication and their functions.

19. Explain the mechanism of mismatch repair during DNA replication.

20. Who proposed wobble hypothesis ? Explain it.

(4×3=12)

SECTION – D

Answer **any two** questions. **Each** question carries **5** marks.

21. Write a detailed account on translation process during protein synthesis.

22. How is gene expression regulated ? Explain it with *lac* operon.

23. Explain different models of DNA replication.

24. Describe the ultra-structure of chromatin in eukaryotes.

(2×5=10)