K19U 0586

Reg. No. : SP17CMIR19

Name : Dheepchand

# IV Semester B.Sc. Degree (CBCSS – Reg./Supple./Imp.) Examination, April 2019
## GENERAL COURSE IN MICROBIOLOGY
## 4A13 MCB : Molecular Biology
## (2014 Admission Onwards)

Time : 3 Hours

Max. Marks : 40

### SECTION – A

1. The charge of DNA molecule is _____
2. The double helical nature of DNA was first of all revealed by _____ and _____
3. mRNA binds to the _____ subunit of ribosome during translation.
4. The DNA molecule of E.coli contains approximately 24% adenine. The percentage of guanine is _____

(4×1=4)

### SECTION – B

5. What are satellite DNAs ?
6. How are nucleotides linked in a DNA molecule ?
7. What are nucleosomes ?
8. Differentiate polycistronic mRNA from monocistronic mRNA.
9. What is the biological function of aminoacyl tRNA synthetases ?
10. What is polysomes ? Why is it important ?
11. How does a retrovirus differ from other kinds of viruses ?

P.T.O.

12. The nontemplate DNA strand has a nucleotide sequence as follows ; AAATGCGCGATA. What is the nucleotide sequence in the template strand and in mRNA ?

13. Why is genetic code termed as degenerate ?

14. Write a short note on TATA box. **(7×2=14)**

## SECTION – C

15. Describe the structure of tRNA molecule.

16. Explain semiconservative method of DNA replication with experimental evidence.

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

18. Topoisomerases play an important role in DNA replication. Why ?

19. Make a comparison between different forms of DNA.

20. Explain the role played by ribosomes during translation. **(4×3=12)**

## SECTION – D

21. Write a detailed account on mRNA synthesis in prokaryotes.

22. Describe the ultrastructure of B-DNA with the help of a diagram.

23. Describe the structure of *trp* operon. Add a short note on its mechanism of regulation.

24. Explain the DNA repair mechanism in prokaryotes. **(2×5=10)**

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