K17U 0642

Reg. No. : .....

Name : .....

IV Semester B.Sc. Degree (CBCSS – Reg./Supple./Imp.) Examination, May 2017
(2014 Admn. Onwards)
General Course in Microbiology
4A13 MCB : MOLECULAR BIOLOGY

Time : 3 Hours

Max. Marks : 40

SECTION – A

I. Answer the following in **one** word :

1) Semiconservative method of DNA replication was first of all shown by _____

2) The intervening non-translated segments within the eukaryotic genes are called _____

3) The basic proteins associated with the DNA of a chromatin are called _____

4) The most unstable RNA is _____

(4×1=4)

SECTION – B

II. Write short answers to **any seven** of the following :

5) Write a brief account on Okazaki fragments.

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

7) Make a comparison between codons and anticodons.

8) What are termination codons ?

9) What is an operon ?

10) Write a brief account on aminoacyl tRNA synthetases.

11) What is 3′ – 5′ phosphodiester bond ? How the bond is formed between nucleotides ?

12) Why mRNA splicing is required in eukaryotes ?

13) What are topoisomerases ?

14) Write a brief account on nucleosomes.

(7×2=14)

P.T.O.

SECTION – C

III. Write a short essay on **any four** of the following :

15) Describe the structure of bacterial ribosomes.

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

17) Who proposed Wobble hypothesis ? Explain it.

18) Describe the three – dimensional structure of DNA.

19) Write a short note on DNA supercoiling.

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

(4×3=12)

SECTION – D

IV. Write essay on **any two** of the following :

21) Explain any two types of DNA repair mechanisms in prokaryotes.

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

23) Describe the ultra-structure of chromatin in eukaryotes.

24) Write a detailed account on translation process during protein synthesis.

(2×5=10)