

THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2014

(UG-CCSS)

Core Course

Microbiology

MB 3B 04—MOLECULAR BIOLOGY

Time : Three Hours

Maximum : 30 Weightage

I. Objective Type questions. Answer *all* twelve questions :1 Co repressor of **trp operon** is :

- (a) Tryptophan. (b) Lactose.
(c) Repressor protein. (d) Allolactose.

2 Which of the following is a stop codon.

- (a) UCC. (b) UGG.
(c) UAA. (d) UUU.

3 AGGAGGU is :

- (a) Start codon. (b) TATA box.
(c) Shine-Dalgarno Sequence. (d) Termination signal.

4 Peptidyl transferase is involved in :

- (a) Formation of peptide bond. (b) Breaking of peptide bond.
(c) DNA replication. (d) DNA supercoiling.

5 Enzyme encoded from *lacA* gene is _____

6 Synaptonemal complex formation occurs during _____

7 Processing of primary mRNA transcript in multiple pattern which result in more than one type is called _____

'8 The diameter of DNA double helix is _____

9 Histones generally contain large amounts of positively charged amino acid residues (True/False).

10 Alu family is an example for SINE (True/False)

Turn over

11 Crossing of hybrid organism with one of the parental genotype is back cross (True/False).

12 RNA polymerase I transcribes all mRNAs in eukaryotes (True/False).

(12 x $\frac{1}{4}$ = 3 weightage)

II. Short Answer Type Questions. Answer all *nine* questions :

13 Diakinesis.

14 Single strand binding proteins.

15 VNTR.

16 TATA box.

17 *lac Z*.

18 Polycistronic mRNA.

19 Sigma factor.

20 snRNA.

21 A-DNA.

(9 x 1 = 9 weightage)

III. Short Essay or Paragraph Questions. Describe the following. Answer any *five* :

22 tRNA.

23 DNA ligase.

24 Telomerase.

25 Polytene chromosome.

26 Wobble hypothesis.

27 Catabolite repression.

28 Prophase.

(5 x 2 = 10 weightage)

IV. Essay Questions. Answer any *two* :

29 Describe the structure of DNA.

30 Describe the **trp operon** and its regulation.

31 Describe post translational modifications.

(2 x 4 = 8 weightage)