

9/11

Master Copy (Re-appeal)

Exam.Code:0908

Sub. Code: 6301

2014

B.E. (Biotechnology) Fourth Semester
BIO-411: Molecular Biology

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Section.

x-x-x

1) Write briefly:

(1×10 = 10)

- a) What are retrotransposons?
- b) Explain processivity of an enzyme.
- c) What is sigma factor in transcription?
- d) What is quorum sensing in bacteria?
- e) What is the importance of second messengers in signal transduction?
- f) What are P, A and E site in ribosome?
- g) What is denaturing gel electrophoresis?
- h) What are the proteins involved in nucleotide excision repair?
- i) What is shine dalgarno sequence?
- j) What is nick translation?

Section-A

2. a) Polymerisation is a thermodynamically favorable reaction. Justify the statement.
- b) How can we differentiate base excision repair from nucleotide excision repair. Explain with diagram.

(5, 5)

3. a) How many types of post transcriptional modifications occurs inside cell?
- b) There are 4 nucleotides in RNA and 3 nucleotides per codon and total 64 codons. However, these 64 codons only code for 20 amino acids and 32 tRNAs are needed to recognize codons in mRNA. Why is it so?

(5, 5)

4. a) What is the difference between core enzyme and holo-enzyme? What is the difference between rho-dependent and independent termination?
- b) Briefly explain: i) α -amanitin, ii) Reverse transcriptase.

(1, 4, 2.5, 2.5)

Section-B

5. a) Define the role of aminoacyl t-RNA synthetase in protein synthesis.
- b) Protein synthesis inhibitors are well known antibiotics, discuss with example.

(4, 6)

6. a) Lactose operon is regulated both positively and negatively. Justify the statement.
- b) Addition of isoprenyl group, carbohydrate side chain and prosthetic group is important for the biological activity of the protein. Justify the statement.

(5, 5)

7. a) How can we separate proteins of same molecular weight? Explain with detail mechanism.
- b) Explain briefly, i) Pulse field gel electrophoresis, ii) Polymerase chain reaction.

(5, 2.5, 2.5)

x-x-x