Exam.Code:0908
Sub. Code: 33362

2015

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. I which is compulsory and selecting two questions from each Unit.

x-x-x

1. Write briefly:

a) What is gratuitous inducer?

b) What is Klenow fragment?

c) What is the difference between replication fork and transcription bubble?

d) Explain m RNA, r RNA and t RNA.

e) What are the criteria for designing primers?

f) What are SnRNPs?

g) Give example of protein synthesis inhibitor and it's mode of action.

h) Define polysome.

i) What is shine dalgarno sequence?

j) What is nucleosome structure? (10x1)

UNIT - I

2. a) Compare DNA pol I, II and III with respect to their activity and efficiency.

b) How does nucleotide excision repair differ from base excision repair?

c) Explain briefly: Direct repair pathway. (3,3.5, 3.5)

3. a) What are the post transcriptional modifications occur on primary transcript?

b) Explain Wobble hypothesis in detail mentioning need of *32 tRNAs* to recognize codons of 20 amino acids. (5,5)

4. a) Compare between homologous and site specific recombination.

b) Briefly explain: i) Ames test, ii) Foot printing assay (5, 2.5, 2.5)

P.T.O.

UNIT - II

5. a) What are the stages of protein synthesis?

   b) Bacterial ribosome has three sites that bind aminoacyl t-RNAs. Explain in detail with diagram. (5,5)

6. a) Explain regulation of gene expression in prokaryotes, mentioning lac operon in detail.

   b) Differentiate between various receptor types in signaling. (5,5)

7. a) Explain mode of action and applications of molecular hybridization techniques.

   b) How molecular biology is utilized in diagnosis and treatment of diseases? (5,5)

x-x-x