Exam.Code:0037
Sub. Code: 0982

1129

B.Sc. (Hons.) Biotechnology
Fifth Semester
BIOT-Sem-V-I-T: Molecular Biology

Time allowed: 3 Hours **Max. Marks: 67**

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting one question from each Unit.

x-x-x

I. What is the significance of the following terms (any 7):

a) Microsatellites
b) B-DNA
c) mRNA
d) Insertional elements
e) RNA Polymerase
f) Telomerase
g) DNA fidelity
h) Origin of replication
i) M13 viral DNA (7x1)

UNIT – I

II. a) How would you distinguish between the genome organization in prokaryotes from Eukaryotes?

b) What are the chemical constituents of DNA? (10,5)

III. What is the significance of the following:

a) Highly repetitive versus Tandemly repetitive DNA
b) Eukaryotic RNA versus Prokaryotic RNA (7,8)

UNIT – II

IV. a) What are the major distinguishing features in Prokaryotic DNA replication from eukaryotic DNA replication?

b) What is semiconservative mode of DNA replication and its significance? (10,5)

P.T.O.

V. What is the significance of the following:

a) Sigma mode of DNA replication

b) Replication factors

c) Replication initiation complex (3x5)

UNIT – III

VI. a) Elucidate the structural features of tRNA, rRNA and mRNA and their role in prokaryotes and eukaryotes.

b) What are various regulatory elements involved in prokaryotic mRNA synthesis? (10,5)

VII. a) What sort of mechanism prevails in the transcriptional regulation in eukaryotes?

b) Write a brief note on RNA polymerase. (10,5)

UNIT – IV

VIII. What do you understand by the following (any three):

a) Amino-acyl tRNA

b) 30-S and 70-S subunit of Ribosomes

c) Allosteric Inhibition

d) Anticodon (3x5)

IX. What is the significance of the following:

a) Polysome

b) Tryptophan Operon

c) Lac-Operon (3x5)

x-x-x