M. SC. (MEDICAL BIOTECHNOLOGY) SEM-I (CHOICE BASED CREDIT SYSTEM) : WINTER - 2017

SUBJECT: MOLECULAR BIOLOGY

Day: **Friday**
Date: **10/11/2017**

Time: **02.00 PM TO 05.00 PM**
Max. Marks: 60

W-2017-1049

N.B.:

1) **Q. No. 1** and **Q. No. 5** are **COMPULSORY**. Out of the remaining attempt any **TWO** questions from each section.
2) Figures to the right indicate **FULL** marks.
3) Answers to both the sections should be written in **SEPARATE** answer book.

SECTION-I

Q.1 Answer the following (**Any FIVE**) **(10)**

a) Enlist the genes involved in SOS response.
b) Name the proteins involved in site specific recombination.
c) What are transcription factors?
d) What is a primosome? Enlist its components.
e) What is a gene family
f) Explain the structure of ribosome with respect to active sites of protein synthesis.

Q.2 Answer the following: **(10)**

a) Describe the structures of promoters of RNA polymerase-I, II and III.
b) Describe eukaryotic transcription regulation.

Q.3 Answer the following: **(10)**

a) Explain the Holliday model for resolution of homologous recombinants.
b) Explain the role of histone proteins in gene regulation.

Q.4 Write short notes on any **TWO** of the following: **(10)**

a) Excision repair pathway in mammalian cells
b) Rec A protein
c) Genome mapping

SECTION-II

Q.5 Give the meaning of any **FIVE** of the following: **(10)**

a) Epigenetics
b) Repetitive DNA
c) Pseudogenes
d) Codon degeneracy
e) Poly (A) tail
f) Euchromatin

Q.6 Answer the following: **(10)**

a) Explain catabolic repression in lactose operon.
b) Explain in detail co-translational translocation of proteins across the membrane of endoplasmic reticulum.

Q.7 Answer the following: **(10)**

a) What are splice junctions? Explain their role in splicing.
b) Enlist the initiating factors required for initiation of prokaryotic protein synthesis and state their role.

Q.8 **a)** How is synthesis of eukaryotic m-RNA initiated? **(10)**

OR

b) Discuss the molecular events involved in the termination of RNA transcription in prokaryotes.

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