

**M. SC. (MEDICAL BIOTECHNOLOGY) SEM-I (CHOICE BASED  
CREDIT SYSTEM) : SUMMER - 2018  
SUBJECT: MOLECULAR BIOLOGY**

Day: **Friday**  
Date: **13/04/2018**

**S-2018-1164**

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

**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) What is C- value paradox?
  - b) What are activators and enhancers?
  - c) Name three enzymatic activities performed by DNA polymerase-I.
  - d) Name three histone modifications involved in chromatin remodeling.
  - e) Define satellite DNA.
  - f) What is a transcription unit? Enlist the components with their function.
- Q.2** Answer the following: **(10)**
- a) Briefly explain the role of licensing factor in eukaryotic replication.
  - b) Explain the structure and role of telomere.
- Q.3** Answer the following: **(10)**
- a) Explain the "D model" of homologous recombination.
  - b) Discuss the role of mut proteins in repair of prokaryotic DNA.
- Q.4** Write short notes on any **TWO** of the following: **(10)**
- a) Genomic imprinting
  - b) Excision repair systems in *E. coli*
  - c) Transport of proteins to mitochondria

**SECTION-II**

- Q.5** Give the meaning of any **FIVE** of the following: **(10)**
- a) Heterochromatin
  - b) Semi-discontinuous mode of replication
  - c) Polycistronic mRNA
  - d) Hemi- methylated DNA
  - e) Splicing
  - f) Genetic code
- Q.6** Answer the following: **(10)**
- a) Explain attenuation control of tryptophan operon.
  - b) Diagrammatically represent 5' capping of mRNA. Add a note on the function of 5' cap in initiation of translation.
- Q.7** Answer the following: **(10)**
- a) Explain the structure of prokaryotic RNA polymerase
  - b) Explain inducible operon with reference to lactose operon
- Q.8** a) Write in detail about the process of translation in prokaryotes. **(10)**

**OR**

- b) Explain the methods used for epigenetic modifications.

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