

**S. Y. B. SC. (BIOTECHNOLOGY) SEM – IV (CBCS - 2015  
COURSE) : WINTER - 2017**

**SUBJECT : FUNDAMENTALS IN MOLECULAR BIOLOGY**

Day : Saturday  
Date : 28/10/2017

**W-2017-0944**

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

**N. B. :**

- 1) **Q. No. 1 and Q. No. 5 are COMPULSORY.** Answer **ANY TWO** from questions **2, 3 and 4** from section **I** and **6, 7 and 8** from section **II**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.

**SECTION - I**

- Q. 1** Attempt **ANY FIVE** of the following: (10)
- a) Define leading and lagging strand.
  - b) Explain the role of DNA helicase.
  - c) Comment on “excision repair” mechanism.
  - d) Define promoter and operator of operon.
  - e) What is Operon?
  - f) What is bipartite promoter?
- Q. 2** Answer the following:
- a) Write the role of various enzymes involved in DNA replication. (05)
  - b) What is the role of tRNA in translation? (05)
- Q. 3** Answer the following:
- a) Describe the types of DNA damages. Explain the role of *uvr* system in DNA repair. (05)
  - b) Describe the role of sigma factor in prokaryotic transcription. (05)
- Q. 4** Write a notes on: (10)
- a) Role of TBP
  - b) Intrinsic termination

**SECTION - II**

- Q. 5** Attempt **ANY FIVE** of the following: (10)
- a) Name any one inhibitor of translation and its mode of action.
  - b) Define activators and repressor.
  - c) Explain the role of ribosomes in protein synthesis.
  - d) What are introns and exons?
  - e) State the function of Shine – Dalgarno sequence.
  - f) Define: Promoter and Operator
- Q. 6** Answer the following:
- a) Give an outline of the steps involved in elongation during protein synthesis. (05)
  - b) Diagrammatically represent 5' capping of mRNA. (05)
- Q. 7** Write short notes on: (10)
- a) mRNA
  - b) Okazaki fragments
- Q. 8** Answer the following:
- a) Describe in detail the regulation of lactose operon. (10)
- OR
- b) Comment on the dual control of Arabinose operon. (10)

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