

**S. Y. B. SC. (BIOTECHNOLOGY) SEM – III (CBCS - 2015  
COURSE) : SUMMER - 2018**

**SUBJECT : PRINCIPLES & TECHNIQUES IN MOLECULAR BIOLOGY**

Day : **Wednesday**

Date : **04/04/2018**

Time **02.00 PM TO 05.00 PM**

Max. Marks : 60

**S-2018-1052**

**N.B.**

- 1) Q.1 and Q.5 are **COMPULSOY**. Answer any **TWO** questions each section.
- 2) Answers to both the sections should be written in **SEPARATE** answer book.

**SECTION – I**

- Q.1** Attempt any **FIVE** of the following: (10)
- a) What is third base degeneracy?
  - b) What is  $T_m$ ?
  - c) What is missense mutation?
  - d) Draw the structure of Guanine and Cytosine.
  - e) What are palindromes?
  - f) What is transition and transversion in mutation?
- Q.2** Attempt the following questions: (10)
- a) Discuss the structure of tRNA. Mention its function.
  - b) Explain DNA supercoiling of bacteria.
- Q.3** Explain the following: (10)
- a) Watson and Crick model of DNA
  - b) Organization of chloroplast genome.
- Q.4** Write short notes on any **TWO** of the following: (10)
- a) Structure of Eukaryotic chromosome
  - b) Ames test
  - c) Genetic code

**SECTION – II**

- Q.5** Attempt any **FIVE** of the following: (10)
- a) What are transposons?
  - b) What is C value paradox?
  - c) How many genes are present in prokaryotes and how they are distributed?
  - d) What are Shine-Dalgarno sequence?
  - e) What is somatic and germline mutation?
  - f) What is Euchromatin?
- Q.6** Attempt the following: (10)
- a) What are the various types of repetitive genes in human genome?
  - b) Explain RT-PCR and multiplex PCR in brief.
- Q.7** Write short notes on : (10)
- a) Southern blotting
  - b) Role of Topoisomerase I
- Q.8** Give an account on: (10)
- a) DNA Micro-array technique
  - b) Mechanism that condense eukaryotic DNA

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