

**S. Y. B. Sc. (Biotechnology) SEM – III (CBCS - 2015 COURSE) :
WINTER - 2018**

Subject: Principles & Techniques in Molecular Biology

Day: Friday
Date: 26/10/2018

W-2018-1176

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

N.B.:

- 1) Q1 and Q5 are compulsory.
- 2) Answer ANY TWO questions from Q 2, 3, 4 in Section I.
- 3) Answer ANY TWO questions from Q 6, 7, 8 in Section II.
- 4) Answers to Both the sections to be written in SEPARATE answer books.
- 5) Draw a labeled diagram WHEREVER necessary.

SECTION - 01

Q.1) Answer the following: (ANY FIVE) (2 Marks X 5 = 10)

- a) What is point mutation?
- b) Why ssDNA is hyperchromic in comparison with ds DNA?
- c) What is T_m? How the GC content affects the T_m of DNA?
- d) What is Shine–Dalgarno sequence?
- e) What do you mean by heterochromatin and euchromatin?
- f) What are linker histones?

Q.2) Answer the following: (5 Marks X 2 = 10)

- a) Justify “codon – anticodon recognition involves wobbling”
- b) What are base modifying agents? Explain its effect on DNA

Q.3) Explain the following: (5 Marks X 2 = 10)

- a) Features of A, B and Z form of DNA
- b) Explain repetitive sequences of the human genome

Q.4) Write short notes on the following: (5 Marks X 2 = 10)

- a) Exceptions to genetic code
- b) Centromere and telomere

SECTION - 02

Q.5) Answer the following: (ANY FIVE) (2 Marks X 5 = 10)

- a) What is C value?
- b) What is RNA splicing?
- c) Write any two applications of DNA Microarray.
- d) What are Nested primers?
- e) What is the role of Ethidium bromide in detection of DNA in gel electrophoresis?
- f) Mention the steps involved in PCR

Q.6) Answer the following: (5 Marks X 2 = 10)

- a) How the compaction of bacterial chromosomes occurs?
- b) Write the principle and application of ChIP

Q.7) Explain the following: (5 Marks X 2 = 10)

- a) Explain the structural features of eukaryotic Genome.
- b) What is Real time Quantitative PCR?

Q.8) Write short notes on the following: (5 Marks X 2 = 10)

- a) Gradient centrifugation
- b) Dideoxy DNA sequencing
