BACHELOR OF SCIENCE (BIOTECHNOLOGY) (CBCS - 2015 COURSE)
S.Y.B.Sc. (Biotech) Sem-III : WINTER :- 2021
SUBJECT: PRINCIPLES & TECHNIQUES IN MOLECULAR BIOLOGY

Day : Saturday | Time : 02:00 PM-05:00 PM
Date 29-01-2022 | **W-13232-2021** | Max. Marks: 60

N.B.

1) Q.1 and Q.5 are **COMPULSORY.**
2) Answer any **TWO** questions from Q. 2, Q.3 & Q.4 and from Q.6, Q.7 and Q.8.
3) Figures to the **RIGHT** indicate full marks.
4) Both the sections should be written in **SEPARATE** answer book.

SECTION – I

Q.1 Attempt any **FIVE** of the following: **(10)**

a) What is C-value and C-value paradox?
b) What are tandem repeats?
c) Draw the structure of bases: Guanine and Uracil.
d) What is Tm? How GC content will affect Tm?
e) How hair pin or cruciform structure is formed in DNA?
f) Define silent mutation and missense mutation.

Q.2 Attempt the following:

a) Explain the structure of t-RNA in brief with labeled diagram. **(05)**
b) Discuss the structure and function of DNA gyrase enzyme. **(05)**

Q.3 Attempt the following

a) Differentiate between prokaryotic and eukaryotic mRNA. **(05)**
b) Give an outline on features of genetic code. **(05)**

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

a) Forward and reverse mutation.
b) Structure of nucleosides and nucleotide.
c) Nucleosome in eukaryotic genome.

SECTION – II

Q.5 Attempt any **TWO** of the following: **(10)**

a) Explain different types of repetitive DNA sequences in eukaryotes.
b) Describe the organization of bacterial chromosome.
c) Discuss Sanger's method of DNA sequencing.

Q.6 Attempt the following:

a) Discuss various methods of nucleic acid detection. **(05)**
b) Explain in brief supercoiling of DNA in bacteria. **(05)**

Q.7 Write short notes on:

a) Mitochondrial genome **(05)**
b) DNA micro array technique **(05)**

Q.8 Give an account on:

a) Agarose gel electrophoresis **(05)**
b) Function of centromere and telomere **(05)**

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