

SUBJECT : GENETICS AND MOLECULAR BIOLOGY

Day : Friday
Date : 12/04/2019

S-2019-1205

Time : 03.00 PM TO 06.00 PM
Max. Marks : 60

N.B.

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the **RIGHT** indicate **FULL** marks.
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- Q.1** Explain packaging of DNA molecule in the eukaryotic chromosome with (15) reference to following
- Nucleosome structure
- Levels of organisation and supercoiling

OR

Explain the working of DNA polymerase-I with reference to

- i) *De novo* synthesis
- ii) 5' – 3' polymerization
- iii) 3' – 5' exonuclease activity

- Q.2** a) Explain Agarose gel electrophoresis method used in DNA purification. (07)
b) Explain in brief the structure and regulation of maltose operon in *E.coli*. (08)

- Q.3** Attempt **ANY THREE**. (15)
- a) Write the name and mechanism of action for antibiotic that affects the DNA structure.
 - b) Give schematic diagram for promoters of RNA polymerase-III.
 - c) Write the characteristics of Genetic code.
 - d) Giving a suitable example explain the feedback regulation mechanism.
 - e) Explain in brief how phages are used as cloning vectors.

- Q.4** Write short notes on **ANY THREE**. (15)
- a) Applications of Recombinant DNA Technology
 - b) Protein sorting in cell
 - c) Chemical structure of protein
 - d) Eukaryotic m-RNA
 - e) Formation Amino acylated t-RNA

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