T.Y.B.Sc. SEM. V (CBCS - 2016): WINTER 2018
SUBJECT : MICROBIOLOGY GENETICS OF PROKARYOTES

Day : Wednesday
Date : 17/10/2018

Time 03.00 P.M. To 06.00 P.M
Max. Marks : 60

W-2018-0750

N.B.

1) All questions are **COMPULSORY**.
2) Figures to the **RIGHT** indicate **FULL** marks.

Q.1 Attempt **ANY TWO** of the following. **(12)**

a) What is bacterial transformation? Comment on factors that affect the process.
b) Write the mechanism of DNA transfer during conjugation in *E. coli.*
c) Enlist various characteristics of generalized transducing phages.

Q.2 Attempt **ANY TWO** of the following. **(12)**

a) Diagrammatically explain Jacob and Monod model for bacterial operon.
b) What are composite transposons? Write its characteristics. How they are formed?
c) Schematically show the results of conjugation between $\underline{Hfr\ Arg^{-}\ Trp^{+}}$ x $\underline{F^{-}\ Arg^{+}\ Trp^{-}}$.

Q.3 Attempt **ANY TWO** of the following. **(12)**

a) What are mobilizable plasmids? Write the molecular mechanism of plasmid mobilization.
b) Explain structure of Trp operon.
c) Explain positive regulation of the Ara operon.

Q.4 Write short notes on **ANY THREE**. **(12)**

a) Artificial transformation
b) Rec A protein and its function in conjugation
c) Transposon
d) Attenuation in Tryptophan operon

Q.5 Attempt **ANY FOUR** of the following. **(12)**

a) Enlist various types Lac mutants and write its effect on Lac operon expression.
b) Define the term conjugation. Diagrammatically represent mechanism of bacterial conjugation.
c) Write various types of bacterial transposons. Draw the structure of each type of bacterial transposons.
d) Diagrammatically represent negative regulation of the Lac operon.
e) Give significance of DNA uptake by various methods
f) Write advantages of natural transformation to bacterial cell.

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