

V.P. & R.P.T.P. SCIENCE COLLEGE
VALLABH VIDYANAGAR
B.Sc (Semester 5)
Internal Examination - 2025
MICROBIOLOGY (US05MAMIC01)
Bacterial Genetics



Date: 22-09-2025 (Monday)

Time: 10:45 a.m to 12:15 p.m

Total marks: 30

Note : All questions are compulsory.

Que 1) Attempt the following multiple choice questions. (06)

- 1) Which enzyme is responsible for breaking the Hydrogen bond during DNA replication.
a) Gyrase b) Helicase c) Primase d) Ligase
- 2) Termination of translation in *E.coli* is carried out by _____.
a) EFG b) IF1 c) EFTu d) RF1
- 3) RNA polymerase core enzyme of *E.coli* does not include this subunit.
a) α b) β c) σ d) ω
- 4) Glycosylation is involved in:
a) Base excision repair c) SOS repair
b) Nucleotide excision repair d) Mismatch repair
- 5) This is not observed in conjugation process.
a) F Plasmid b) Lamda vector c) sex pili d) secretory system
- 6) SOS genes are under the control of this gene product.
a) Lex A b) Lac A c) polA d) dinA

Que2) Discuss Meselson and Stahl's experiment and its outcome. (06)

OR

Que 2) Describe the structure of DNA. (06)

Que 3) Draw and describe the structure of tRNA. (06)

OR

Que 3) Elaborate the mechanism of termination of bacterial transcription. (06)

Que 4) Write a note on Ames's test. (06)

OR

Que 4) Describe Fluctuation test. (06)

Que 5) Define transduction. Discuss the process of generalised transduction. (06)

OR

Que 5) Explain the formation of Hfr strains and the mechanism of Hfr mediated gene transfer in bacteria. (06)

ROLL No of student _____

V.P. & R.P.T.P. SCIENCE COLLEGE
VALLABH VIDYANAGAR

B.Sc (Semester 5)

Internal Examination - 2025

MICROBIOLOGY (US05MAMIC01)

Bacterial Genetics



Date: 22-09-2025 (Monday)

Time: 10:045 a.m to 12:15 p.m

Note : All questions are compulsory.

Total marks: (15)

QUIZ

Que 1) Fill-in the blank using an appropriate answer.

(08)

- 1) The structure proposed by Watson and Crick was _____ form of DNA. (A, B)
- 2) *Borrelia burgdoferi* consists of _____ DNA. (Linear, Circular)
- 3) Ribosomes of prokaryotes are _____. (70S , 80S)
- 4) Genetic code for an amino acid is present on _____. (mRNA, rRNA.)
- 5) _____ is an example of nitrogen base analogue. (Acriflavin, 5-Bromo Uracil)
- 6) Thymine dimers are formed in DNA by the effect of _____.
(Ultraviolet radiation, Nitrous acid)
- 7) _____ is chromosomal mediated gene transfer phenomenon.
(Transformation, Transduction)
- 8) Bacteria undergo _____ gene transfer. (Vertical, Horizontal]

Que 2) State whether the following statement is true or false

(07)

- 1) New strand of DNA is synthesised in 5' to 3' direction. []
- 2) DNA is made up of dideoxynucleotides. []
- 3) TTGACA sequence is present at -10 region of promoter sequence. []
- 4) Protein is synthesized on the nuclear chromosome. []
- 5) Ethyl methane sulphonate is an Alkylating agent. []
- 6) Addition of a nucleotide in the existing DNA sequence can lead to transition mutation. []
- 7) Tn3 is an example of simple transposable element. []