

**FOURTH SEMESTER B.Sc. DEGREE (SUPPLEMENTARY/IMPROVEMENT)
EXAMINATION, MAY 2016**

(UG-CCSS)

Biotechnology – Core Course

BT 4B 01— MICROBIAL GENETICS

Time : Three Hours

Maximum : 30 Weightage

I. Objective Type Questions. Answer *all* questions :

A. Name the following :

1. A technique in which electricity is used to make cells competent.
2. The process of naked DNA can be taken up into the cell.
3. A virus which infects bacterial cell is known as.
4. Who first discovered Mobile genetic element ?
5. Enzyme used to cut DNA at specific site.
6. Largest virus.

B. Select the correct answer :

7. Which is associated with genetic exchange in bacteria?
 - (a) Capsule.
 - (b) Endospore.
 - (c) Flagella.
 - (d) Pili.
8. A retro virus causing disease is :
 - (a) Influenza.
 - (b) Hepatitis.
 - (c) HIV.
 - (d) Mums.
9. Name the bacterium known as natural genetic engineer of plants :
 - (a) Rhizopus.
 - (b) Pseudomonas.
 - (c) Agrobacterium tumefaciens.
 - (d) Bacillus.
10. A spontaneous mutation usually originates as an error in :
 - (a) DNA replication.
 - (b) DNA transcription.
 - (c) Translation.
 - (d) Reverse transcription.
11. What is the physical basis of mutational hot spots ?
 - (a) Transposons.
 - (b) Tautomers.
 - (c) Palindromes.
 - (d) Transitions.

Turn over

12. Negri bodies are associated with :

- (a) Aseptic meningitis. (b) Rubella.
(c) Mumps. (d) Rabies.

(12 x $\frac{1}{4}$ = 3 weightage)

II. Short Answer Type Questions. Answer all *nine* questions :

13. Plaque.
14. *Salmonella typhimurium*.
15. Rubella.
16. Illegitimate recombination.
17. IS element.
18. T₄ DNA ligase.
19. In vitro packaging.
20. Mutational hotspots.
21. Auxotroph.

(9 x 1 = weightage)

III. Short Essay or Paragraph Questions. Answer any *five* of the following :

22. Write on genome organisation and map of **T₄** phage.
23. Explain Time scale experiment.
24. Discuss a—complementation.
25. Give an account on chemical mutagens.
26. Explain terminator gene technology.
27. Discuss Generalized *vs.* Specialized transduction.
28. Explain the structure of Bacteriophage.

(5 x 2 = 10 weigh

IV. Essay Questions. Answer any *two* out of three :

29. What are transposable elements? Write on different types and their application.
30. Give classification of Bacteriophages.
31. Gene transfer mechanisms in bacteria and explain how it useful in gene mapping.

(2 x 4 = 8