

10. When viral genome can become integrated into the bacterial genome they are known as:
- a. Temperate phage
 - b. Bacteriophage
 - c. Virus
 - d. Prophage

(Descriptive)

Time : 1 hr. 15 mins.

Marks : 25

[Answer question no.1 & any two (2) from the rest]

1. What is mutation? What are the important features for a stable mutation? Justify your answer. Write in brief about spontaneous mutation. 1+2+2=5

2. Define Competent cell. Describe the mechanism of transformation with a neat diagram. 10
A transformation experiment is carried out using donor that is A+B+C+ and the recipient is A-B-C-. B+ transformation is selected. Of these 18% are C+ and none A+. C+ transformation is also selected where 10% is A+ What is gene order

3. Define plasmids. Explain the structure and features of Ti plasmids with a suitable diagram. Explain the replication process that helps in the movement of DNA from F+ to F-. Draw a suitable diagram. Explain in your language about plasmid incompatibility. 1+3+2+3=10

4. What is the difference between F+ plasmid and hfr? Explain the method of transfer of F plasmid to a recipient bacterium. Draw a suitable diagram. What is a copy number and how is it regulated? Explain. 2+4+4=10

5. a) Explain the mechanism of Transduction with a neat diagram. 1+2+4+3=10
b) Describe Hfr Conjugation with a neat diagram. Draw a diagram stating the transfer of amino Acid from F+ to F- cell.
i) Methionine: 20 min
ii) Lysine: 5 min
iii) Tryptophan: 12 min
iv) Tyrosine: 10 min

= = *** = =