Note: Answer all questions from Part - A and Part - B.
Each question carries 4 marks in Part - A and 12 marks in Part - B.

PART - A (8 x 4 = 32 Marks)
[Short Answer Type]

1. "Semi-conservative replication" of DNA.
2. Transposable elements
3. Codon redundancy
4. Spliceosomes
5. Genetic complementation
6. Mutagens
7. Hfr transfer
8. Differentiate transformation and conjugation

PART - B (4 x 12 = 48 Marks)
[Essay Answer Type]

9. a) Explain the process of DNA replication in eukaryotes.
   OR
   b) Discuss the structural and functional organization of bacterial genome.

10. a) Write in detail about the process of translation.
    OR
    b) Briefly explain the following:
       A) Structure of tRNA
       B) mRNA splicing
       C) Genetic code

11. a) Write in detail on the molecular basis of mutations.
     OR
     b) Discuss in detail about the different DNA damage repair mechanisms.

12. a) Write in detail on the significance of horizontal gene transfer in prokaryotes.
     OR
     b) Explain the types of bacterial transduction.