



**THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED**

**Q.1. Differentiate:**

**(15x2=30)**

1. SPONTANEOUS and INDUCED Mutations
2. NUCLEOSOME and NUCLEOID Region
3. Phage LAMBDA ( $\lambda$ ) and F-PLASMID
4. BACTERIOPHAGE and PROPHAGE
5. CISTRON and OPERON
6. COMPLEMENTATION and RECOMBINATION
7. TRANSDUCTION and TRANSFORMATION
8. PHOTOREACTIVATION and RECOMBINATION REPAIR
9. INDUCTION and REPRESSION
10. TRANSDUCTION and TRANSFORMATION
11. NUCLEOTIDE and NUCLEOSIDE
12. *lac-Z* and *lac-Y*
13. CONDITIONAL LETHAL and LETHAL mutations
14. PROMOTER and OPERATOR
15. DELETION MUTATION and DELETION MAPPING

**Q.2. Answer the following questions.**

**(5x6=30)**

1. Explain the HOLIDAY MODEL of RECOMBINATION.
2. What do you understand by the term MOBILE ELEMENTS? What is their role in genetics?
3. Explain the mechanisms involved in mutations caused by BASE ANALOGUES with reference to 5-Bromouracil and Aminopurine. Draw diagram where necessary.
4. What do you understand by the term "CATABOLITE REPRESSION"?
5. How you can study the PHENOTYPE of phages?