UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program : Fifth Semester – Fall 2021

Roll No. .....

Paper: Microbial and Molecular Genetics **Course Code: BOT-303** **Time: 3 Hrs.** **Marks: 60**

Q.1. Differentiate: **(15x2=30)**

1. R-PLASMID and F-PLASMID
2. HETEROCHROMATIN and EUCHROMATIN
3. CONDITIONAL LETHAL and LETHAL mutations
4. PROMOTER and OPERATOR
5. Hfr and F+ CELLS
6. Phage LAMBDA (λ) and F-PLASMID
7. OPAL and OCHRE codon
8. BACTERIOPHAGE and PROPHAGE
9. COMPLEMENTATION and RECOMBINATION
10. SPONTANEOUS and INDUCED Mutations
11. CISTRON and OPERON
12. NUCLEOSOME and NUCLEOID Region
13. TRANSDUCTION and TRANSFORMATION
14. NUCLEOTIDE and NUCLEOSIDE
15. *lac*-Z and *lac*-Y

Q.2. Answer the following questions. **(5x6=30)**

1. How can you map the genes using the process of CONJUGATION in prokaryotes?

2. Give a brief account about GENE-PROTEIN RELATIONSHIP.

3. What are the practical applications of MUTATIONS?

4. What do you understand by the term MOBILE ELEMENTS? What is their role in genetics?

5. Explain the HOLIDAY MODEL of RECOMBINATION