C.U.SHAH UNIVERSITY
Summer Examination-2019

Subject Name: Microbial Genetics
Subject Code: 4SC03MIG1   **Branch: B.Sc (Microbiology)**
Semester: 3   Date: 13/03/2019   Time: 02:30 To 05:30   Marks: 70
Instructions:
    (1) Use of Programmable calculator & any other electronic instrument is prohibited.
    (2) Instructions written on main answer book are strictly to be obeyed.
    (3) Draw neat diagrams and figures (if necessary) at right places.
    (4) Assume suitable data if needed.

Q-1	**Attempt the following questions:**	**(14)**
a)	Define competent cell	
b)	Define mutagen	
c)	Define prototrophic strain	
d)	Define Transformation	
e)	Define Conjugation	
f)	Define the term Copy Number	
g)	Define non sense mutation	
h)	Expand pBR322	
i)	Expand HFT	
j)	Define plasmid amplification	
k)	Define bacteriophage	
l)	Non- Replicative mode of transposition is also known as cut and paste method. True/ False.	
m)	What is co-transduction?	
n)	Define lethal mutation.	

Attempt any four questions from Q-2 to Q-8

Q-2	**Attempt all questions**	**(14)**
a)	Discuss Prokaryotic transposable elements	**(7)**
b)	Explain the mechanism of transposition in Drosophila	**(7)**
Q-3	**Attempt all questions**	**(14)**
a)	Discuss conjugation between Hfr and F⁻ plasmid	**(7)**
b)	Compare generalized and specialized transduction	**(7)**
Q-4	**Attempt all questions**	**(14)**
a)	Discuss the role of Ti plasmid in Genetic Engineering of Plants.	**(7)**
b)	Write a short note on the classification of bacterial plasmids	**(7)**
Q-5	**Attempt all questions**	**(14)**
a)	Write a note on Genome Organization of *E. coli*	**(7)**
b)	Discuss Ames test. Write its importance in mutational studies	**(7)**

Q-6   **Attempt all questions**   **(14)**
   a) Define recombination. Discuss mapping by recombination.   **(7)**
   b) What do you understand by Functional mutants? Briefly discuss loss of function   **(7)**
       and gain of function mutants.

Q-7   **Attempt all questions**   **(14)**
   a) How do chemicals lead to mutations? Explain with the help of an example.   **(7)**
   b) Write the general characteristics of a typical T4 phage. Discuss lytic cycle with **(7)**
       the help of a labeled diagram

Q-8   **Attempt all questions**   **(14)**
   a) Discuss the mechanism of transposition in Ty retrotransposon   **(7)**
   b) Define transposition. Write a note on the uses of transposons.   **(7)**