

Enrollment No. _____



**NAVRACHANA
UNIVERSITY**
a UGC recognized University

School: School of Science
Program/s: BMS
Year: 3rd **Semester:** 5th
Examination: End Semester Examination
Examination year: December - 2021

Course Code: BM204 **Course Name:** Genetics II

Date: 08/12/2021

Time: 11.30am to 1.30 pm

Total Marks: 40

Total Pages: 02

Instructions:

- Write each answer on a new page.
- Draw the diagram wherever necessary
- Stick to the Word Limit given in the Questions.

Q. No.	Details	Marks	COs*	BTL#
Q.1	<p>Fill in the Blanks:</p> <ol style="list-style-type: none"> Evolutionary change within populations of a species is defined as _____ _____ invented replica plating. _____ mutations occur in non-reproductive cells and won't be passed onto offspring. _____ is the process of formation of a new genetically independent group of organisms, called species, through the course of evolution. _____, phage carry bacterial chromosomal DNA from a cell that underwent a lytic infection to another bacterial cell. 	5	CO1	BT1, BT2
Q.2	<p>Define the following terms with example (Any Three)</p> <ol style="list-style-type: none"> Artificial transformation Gene pool Spontaneous mutations Transposable elements 	6	CO2	BT3, BT4
Q.3	<p>Answer the following questions in detail: (Any Three)</p> <ol style="list-style-type: none"> Explain the reasons for high level of genetic variations in population Explain adaptation hypothesis What is replica plating ? What are the possible consequences of transposition in Prokaryotes? Given a population in Hardy-Weinberg equilibrium with allele frequencies $A = 0.7$ and $a = 0.3$, determine the frequencies of the three genotypes AA, Aa, aa 	9	CO3, CO4	BT2, BT3, BT4

Q4	<p>Answer the following question in detail (Any Four)</p> <ol style="list-style-type: none"> 1. What is the mechanism by which F⁺ strains transfer chromosomal DNA to recipients? 2. Classify and describe transposable elements in Eukaryotes. 3. Discuss the process of speciation and its outcomes in detail. 4. The beak color of finches has a complete dominance relationship where black beaks are dominant over yellow beaks. There are 210 individuals with the genotype DD, 245 individuals with the genotype Dd and 45 individuals with the genotype dd. Find: the frequency of the dominant and recessive alleles and the frequency of individuals with dominant, heterozygous, and recessive traits. 5. What is microevolution? How does it occur? 	20	CO1,2,4	BT 234
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