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## GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Third Semester - Regular) Examinations, December – 2022  
**21BBSBS230B1 – Basics of Biology**  
 (Biotechnology)

Time: 3 hrs

Maximum: 70 Marks

### Answer ALL questions

(The figures in the right hand margin indicate marks)

#### PART – A

(2 x 5 = 10 Marks)

Q.1. Answer ALL questions

	CO #	Blooms Level
a. How could you differentiate prokaryotic cell from an eukaryotic cell?	CO1	3
b. What is the importance of cell division?	CO2	2
c. What is the significance of interphase?	CO2	1
d. Discuss chromosomal theory of inheritance?	CO3	2
e. What is genetic equilibrium?	CO4	3

#### PART – B

(15 x 4 = 60 Marks)

Answer ALL the questions

	Marks	CO #	Blooms Level
2. a. Give a detailed note on prokaryotic cell with reference to bacteria.	8	CO1	2
b. Describe the structure and functions of Mitochondria?	7	CO1	2
(OR)			
c. Explain the fluid mosaic model of cell membrane?	8	CO1	3
d. How would you prove that DNA of 3 meter long packaged in nucleus?	7	CO1	4
3.a. What are the various stages of mitosis? Enumerate the chromosomal events during each stage?	8	CO2	4
b. Comment on cell cycle and add note on the role of check points.	7	CO2	3
(OR)			
c. What is cell signalling? Describe the principle of various types of cell signalling.	15	CO2	2
4.a. What is epistasis? Explain dominant epistasis with suitable example.	8	CO3	3
b. Give a note cytoplasmic inheritance with reference to shell coiling in snail?	7	CO3	4
(OR)			
c. What is linkage? Discuss incomplete linkage with suitable example.	8	CO3	2
d. What is mutation? Explain various types of gene mutations.	7	CO3	2
5.a. Give a detailed note on genetic drift.	8	CO4	2
b. Comment on effect of evolutionary forces on genetic equilibrium.	7	CO4	3
(OR)			
c. Explain the principle of Hardy-Weinberg's law? A Population of cats can be either black or white: the black allele (B) has complete dominance over the white allele (b). Given a population of 1,000 cats, 840 black and 160 white, determine the allele frequency, the frequency of individuals per genotype and number of individuals per genotype.	15	CO4	3

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