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**GIET UNIVERSITY, GUNUPUR – 765022**  
M. Sc. (First Semester) Examinations, March – 2023  
**22BTPC102 – Cell and Molecular Biology**  
(Biotechnology)

Time: 3 hrs

Maximum: 70 Marks

(The figures in the right hand margin indicate marks.)

**PART – A****(2 x 10 = 20 Marks)****1. Answer all questions**

	CO#	Blooms Level
a. What is mutation? Write the name of two diseases caused due to mutation.	3	2
b. What is the tumour suppressor gene? Give some examples.	1	1
c. Differentiate between apoptosis and necrosis	2	2
d. What is the Wobble hypothesis?	1	1
e. What is the degeneracy of codons? Give one example.	1	2
f. What is the function of miRNAs and siRNAs in the cell?	2	2
g. What are the different histone proteins involved in the formation of nucleosomes?	1	2
h. Classify chromosomes according to the position of the centromere.	2	3
i. What are the basic composition of the cell wall of bacteria, fungi and plants?	1	2
j. What is the function of the nucleolus?	3	2

**PART – B****(10 x 5 = 50 Marks)**Answer ANY FIVE questions

	Marks	CO#	Blooms Level
2. a. What is the importance of intracellular vesicular trafficking?	3	3	2
b. Describe the mechanism of vesicular trafficking from the endoplasmic reticulum through the Golgi apparatus to lysosomes or cell exteriors.	7	2	2
3.a. What is a cell receptor? Where does this present in a cell? How do these help in transmembrane signalling?	5	2	3
b. What are the different transmembrane signalling occurring in cells?	5	2	2
4. a. What are the different types of DNAs, RNAs and proteins in eukaryotic cells?	3	1	1
b. Describe different techniques for analysing and manipulating DNAs.	7	2	3
5.a. What are mutation and its role in biological evolution?	3	1	3
b. What are the different mutagens and genes involved in cancer? Enlist and diagrammatically shows different types of mutations.	7	1	2
6. a. What do you mean by operon?	3	1	1
b. Describe the regulation of Lac and Trp operons.	7	2	2
7.a. Give the structural interactome of histone and DNA in chromatin fibres.	5	1	2
b. Enlist the molecular machinery required for DNA replication in prokaryotic and eukaryotic cells and their respective function.	5	3	1
8. a. Give a list of non-membrane, single, and double membrane-bound organelles in eukaryotic cells.	3	1	2
b. Write the functions of the Golgi apparatus, lysosomes and peroxisomes.	7	2	3

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