

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III (NEW) EXAMINATION – WINTER 2023****Subject Code:3130406****Date:18-01-2024****Subject Name:Cell Biology****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		Marks
Q.1	(a) Compare bacterial endospore with vegetative cell.	03
	(b) Write an account on misuse of biotechnology.	04
	(c) Draw a well labelled diagram of animal cell. Comment upon the functions of nucleus, mitochondria, and ribosomes.	07
Q.2	(a) What type of cytoplasmic inclusions are formed by prokaryotes?	03
	(b) Explain the terms nucleoid, nucleus, chromosome and plasmid.	04
	(c) What is chemical composition of outer membrane? Draw structure of outer membrane and list any three functions of outer membrane.	07
	OR	
	(c) What is function of gas vesicles? How are these structures made so that they remain gas tight?	07
Q.3	(a) Compare and contrast co-translational and post-translational translocation of polypeptide chains into the endoplasmic reticulum.	03
	(b) Explain composition and structure of plant cell wall.	04
	(c) Describe structure and function of bacterial flagellum? What is energy source for flagellum?	07
	OR	
Q.3	(a) Differentiate between active and passive transport.	03
	(b) Explain types of lysosomes in animal cell.	04
	(c) Explain different cell junctions with their functions in detail	07
Q.4	(a) Compare function of mitochondria and chloroplast in eukaryotic cell.	03
	(b) Explain function of Golgi apparatus in an animal cell.	04
	(c) Explain co translational pathway of protein synthesis in RER	07
	OR	
Q.4	(a) What is euchromatin and heterochromatin?	03
	(b) What is role of histone in structure of chromosome? How does nucleosome formation occur?	04
	(c) Explain post translational pathway of protein synthesis in RER	07

Q.5	(a) How does G coupled receptor transduce the signal?	03
	(b) Explain G1 and S phase of cell cycle.	04
	(c) Explain in detail first meiotic prophase with proper diagram.	07
OR		
Q.5	(a) Explain receptor linked protein tyrosine kinase working.	03
	(b) Explain key regulatory checkpoints of cell cycle.	04
	(c) Explain cAMP pathway in detail with proper diagram.	07
