MODEL QUESTIONN PAPER					
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)					
B.E. in Biotechnology					
Course Name: Cell Biology and Genetics			**Course code: BBT301**		
Third Semester BE Degree Examination Jan/Feb 2024					
Time : 3 hours			Max marks: 100		
Note : answer any FIVE full questions, choosing ONE full questions from each module					
Module-1					
1	a.	What are Microtubules? outline structure and function of microtubules in detail with neat diagram	CO1	L1	10
	b.	Interpret structure and function of A membrane-bound cell organelle that contains digestive enzymes	CO1	L2	10
or					
2	a.	With a neat Labeled diagram describe the structural organization of prokaryotic cell with suitable example	CO1	L1	10
	b.	Summarise types of intermediate filaments with suitable examples.	CO1	L2	10
Module-2					
3	a.	Distinguish between Prophase of Meiosis I with Prophase II of meiosis II with neat labeled diagram	CO2	L2	10
	b.	Define quorum sensing? Explain the molecular mechanism of quorum sensing in Bacteria.	CO2	L1	10
or					
4	a.	Describe the mechanism involved in biofilm formation with a suitable example	CO2	L1	10
	b.	Paraphrase on the mechanism involving G Protein coupled receptor in signal transduction.	CO2	L2	10
Module-3					
5	a.	Comment on the mechanism of active transport system by taking Na+- K+ ATPase as example	CO2	L2	10
	b.	Illustrate the mechanism of action of receptor mediated endocytosis with suitable example	CO2	L3	10
or					
6	a.	Differentiate between active and passive membrane transport	CO2	L2	10
	b.	Illustrate on translocation of Secretory proteins cross the ER membrane	CO2	L3	10
Module-4					
7	a.	Present the complementary gene interaction by taking flower colour in sweet peas as an example.	CO3	L3	10
	b.	Analyse the structure of Metaphase chromosome along with its Chemical Components.	CO1	L4	10
or					
8	a.	Apply Hershey and Chase experiment demonstrating DNA as genetic material.	CO3	L3	10
	b.	Organize the structure of nucleosome with neat labeled diagram.	CO1	L4	10
Module-5					
9	a.	Explain XX-XY, XX-XO, ZZ-ZW and ZZ-ZO type of sex determination	CO3	L3	10
	b.	Prioritize on i) Interference and Coincidence ii) Chromosomal Map and linkage map	CO3	L4	10
or					

10	a.	Make use of Colour blindness and Haemophilia to explain X linked recessive inheritance	CO3	L3	10
	b.	Point out on Hardy-Weinberg principle relates genotypes and allelic frequencies	CO3	L4	10

CO1: To Describe the structure and function of cell and Cell organelles
CO2: Illustrate on Concepts of cell signalling and transport of Molecules
CO3: Analyze the principles and concept of genetics and population genetics