Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV(New) EXAMINATION – SUMMER 2016

Subject Code:2140405 **Date:26/05/2016**

Subject Name:Cell Biology and Industrial Biotechnology

Time:10:30 AM to 01:30 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

			MARKS
Q.1		**Short Questions**	**14**
	1	What do you mean by akaryotic cell?	**1**
	2	What is function of mitochondria?	**1**
	3	Name different phases of cell cycle.	**1**
	4	What is full form of MPF.	**1**
	5	Define the term fermentation.	**1**
	6	Give an example of complex media.	**1**
	7	Give an example of submerged fermentation.	**1**
	8	What are different techniques for isolation of microbes?	**1**
	9	Give one difference between meiosis and mitosis.	**1**
	10	In which phase of cell division, chromosomes align in equatorial plate?	**1**
	11	What is function of ribosome in a cell?	**1**
	12	Name different arrangements of flagella.	**1**
	13	What is another name of outer membrane of bacteria?	**1**
	14	Cell wall of a bacteria is made up of _____.	**1**
Q.2	**(a)**	Write a short note on slime layer / capsule	**03**
	(b)	Give difference between prokaryotic and eukaryotic cell.	**04**
	(c)	Draw a neat structure of Mitochondria and explain it.	**07**
		OR	
	(c)	Write a brief note on structure and function of Endoplasmic reticulum.	**07**
Q.3	**(a)**	Name different components of cytoskeleton with their function.	**03**
	(b)	What is role of cyclins and protein kinases in a cell cycle?	**04**
	(c)	Explain the process of mitosis in detail with necessary diagrams.	**07**
		OR	
Q.3	**(a)**	Name different modes of transportation across cell membrane and explain them in short.	**03**
	(b)	Write a short note on MAP kinase cascades	**04**
	(c)	Explain Prophase I of meiosis with neat diagram.	**07**
Q.4	**(a)**	Write a note on plant cell wall.	**03**
	(b)	Explain solid fermentation with its merits and demerits	**04**
	(c)	Draw and explain basic outline of a fermentation process	**07**
		OR	
Q.4	**(a)**	What is media? What are its components?	**03**
	(b)	What are different ways of strain improvement? Explain	**04**

		any one in detail.	
	(c)	Explain the process of fermentative production of ethyl alcohol.	**07**
Q.5	**(a)**	Write a note on nucleoid.	**03**
	(b)	Enlist different type of lysosomes in a cell. Explain them in brief.	**04**
	(c)	Explain G protein associated signaling pathway.	**07**

OR

Q.5	**(a)**	What are components of nucleus? What is role of nucleus in a cell?	**03**
	(b)	What is importance of Single cell protein?	**04**
	(c)	Explain the process of fermentative production of citric acid.	**07**

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