Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:2140401 **Date:08/06/2016**

Subject Name:Molecular Biology and Genetics

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.**

			MARKS
Q.1		**Short Questions**	**14**
	1	Who is father of genetics?	**1**
	2	Define the term pleiotropy	**1**
	3	What is role of primer in DNA replication?	**1**
	4	What is monocistronic mRNA?	**1**
	5	What is melting temperature?	**1**
	6	What is role of tRNA in translation?	**1**
	7	What is function of RNA polymerase?	**1**
	8	What is function of Helicase?	**1**
	9	From which site does replication start?	**1**
	10	What is function of DNA Polymerase I?	**1**
	11	Define the term 'muton'.	**1**
	12	Which genes are involved in cytoplasmic inheritance?	**1**
	13	What is meaning of strongly linked genes?	**1**
	14	Give statement of Mendel's law of independent assortment.	**1**
Q.2	**(a)**	Define the terms codon, anti codon	**03**
	(b)	Write a short note on wobble hypothesis.	**04**
	(c)	Explain the mechanism of termination of RNA synthesis in prokaryotes.	**07**
		OR	
	(c)	Explain the mechanism of elongation of translation in prokaryotes.	**07**
Q.3	**(a)**	Define the term epistasis and dominance.	**03**
	(b)	Explain phenomenon of Dominance.	**04**
	(c)	Explain the mechanism of replication in eukaryotes.	**07**
		OR	
Q.3	**(a)**	Define the term phenotype, genotype	**03**
	(b)	Explain the mechanism of termination of replication in prokaryotes.	**04**
	(c)	Explain structure of eukaryotic chromosome.	**07**
Q.4	**(a)**	Give any three characteristics of genetic code.	**03**
	(b)	Explain post transcriptional modification of mRNA.	**04**
	(c)	Explain Mendel's law of segregation with a suitable illustration.	**07**
		OR	
Q.4	**(a)**	Give any three reasons for selection of pea plant as explants in Mendel's experiment.	**03**
	(b)	Explain post translational modification.	**04**
	(c)	Explain mechanism of crossing over of chromosomes.	**07**
Q.5	**(a)**	Explain any one chromosomal disorder.	**03**

	(b)	Give difference between complete and incomplete linkage.	**04**
	(c)	Explain prokaryotic gene structure.	**07**
		OR	
Q.5	**(a)**	What conditions are required for renaturation of DNA?	**03**
	(b)	Explain any one method of sex determination.	**04**
	(c)	Explain any one epistasis in detail with suitable illustration.	**07**

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