Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV • EXAMINATION – WINTER 2013

Subject Code: 140401 **Date: 19-12-2013**

Subject Name: Molecular Biology and Genetics

Time: 2.30 Pm - 05.00 pm **Total Marks: 70**

Instructions:

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

Q.1	**(a)**	Explain the mechanism of crossing over with a neat diagram.	**07**
	(b)	Write a short note on following a) gene b) allele c) recon d) cistron e) muton.	**07**
Q.2	**(a)**	Explain the mechanism of replication in detail with a neat diagram.	**07**
	(b)	What is sex linked inheritance? Explain using an example of Z-linked recessive genes in moths.	**07**
		OR	
	(b)	In Drosophila, a dominant gene (D) for a phenotype called dichaete alters the bristles and also makes the wings to remain extended from the body while the fly is at rest. It is homozygous lethal (DD). a) Diagram a cross between two dichaete flies and summarize the expected results. b) Diagram a cross between dichaete and wild type and summarize the expected results.	**07**
Q.3	**(a)**	Explain different modes of replication with diagram of each.	**07**
	(b)	Draw a neat diagram of clover leaf structure of tRNA and explain it.	**07**
		OR	
Q.3	**(a)**	Explain the process of termination of transcription in prokaryotes.	**07**
	(b)	Explain charging of tRNA and formation of initiation complex during translation process in prokaryotes.	**07**
Q.4	**(a)**	Explain enzymology of replication in eukaryotes.	**07**
	(b)	Explain the terms co-dominance with an example.	**07**
		OR	
Q.4	**(a)**	Explain various disorders generated due to anomalies in human sex chromosomes.	**07**
	(b)	Explain complete linkage with an example.	**07**
Q.5	**(a)**	Write a short note on renaturation and denaturation of DNA.	**07**
	(b)	Write a short note on properties of genetic code.	**07**
		OR	
Q.5	**(a)**	Explain various disorders generated due to anomalies in human somatic chromosomes	**07**
	(b)	Write a short note on Wobble hypothesis.	**07**

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