Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM-IV Examination-Nov/Dec-2011

Subject code: 140401 Date: 25/11/2011

Subject Name: Molecular Biology and Genetics

Time: 02.30 pm -5.00 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 DNA as a genetic material in prokaryotes.	**10**
	(b)	What is Wobble Hypothesis? Explain it.	**04**
Q.2	**(a)**	Red colour in wheat kernel is produced by the genotype R-B-, white by the double recessive genotype rrbb. The genotypes R-bb and rrB- produce brown kernels. A homozygous red variety is crossed to a white variety, what phenotypic results are obtained in F1 and F2.	**07**
	(b)	Describe denaturation and renaturation of DNA.	**07**
		OR	
	(b)	Explain Clover-Leaf model of t-RNA.	**07**
Q.3	**(a)**	Define and Explain Mendel's law of segregation.	**07**
	(b)	Explain break and exchange theory behind crossing over.	**04**
	(c)	Define Pleiotropy, maternal inheritance and dominant allele.	**03**
		OR	
Q.3	**(a)**	Define and Explain Mendel's law of independent assortment.	**07**
	(b)	Differentiate between prokaryotic and eukaryotic replication.	**04**
	(c)	Define synapsis, test cross and recessive allele.	**03**
Q.4	**(a)**	Write a short note on post transcriptional modification of m-RNA.	**07**
	(b)	Explain Conservative, Semi conservative and Dispersive mode of replication.	**07**
		OR	
Q.4	**(a)**	Explain initiation mechanism of transcription in eukaryotes.	**07**
	(b)	Explain elongation and termination mechanism of transcription in prokaryotes.	**07**
Q.5	**(a)**	Explain mechanism of translation in prokaryotes.	**10**
	(b)	What is unidirectional and bidirectional replication.	**04**
		OR	
Q.5	**(a)**	Write a short note on replication in eukaryotes.	**07**
	(b)	Describe the acylation of t-RNA	**07**

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