Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – SUMMER 2013

Subject Code: 160401 Date: 24-05-2013

Subject Name: Advance Molecular Biology - II

Time: 10.30 am - 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.**

Q.1	**(a)**	Explain the Holliday model for homologous recombination with a neat diagram.	**07**
	(b)	Explain the phenomena of binding of DNA to competent cell during transformation in *Streptococcus Pneumonia.*	**07**
Q.2	**(a)**	Explain splicing pathway of nuclear pre mRNA with a neat diagram.	**07**
	(b)	Elaborate on the autonomous and non autonomous elements in transposition.	**07**
		OR	
	(b)	Elaborate on the cut-and paste mechanism of transposition.	**07**
Q.3	**(a)**	Explain Chain Termination method of DNA sequencing.	**07**
	(b)	Draw and explain sequences at the intron exon boundary involved in splicing mechanism.	**04**
	(c)	Define the terms: Recombination, Transformation, Transposition	**03**
		OR	
Q.3	**(a)**	Explain chemical modification method of DNA sequencing.	**07**
	(b)	Differentiate between three classes of RNA splicing.	**04**
	(c)	Define the terms: Competence, Transposons, Conjugation	**03**
Q.4	**(a)**	Explain the process of DNA Mobilization and Transfer during conjugation process.	**07**
	(b)	Explain structure of Retrovirus with a neat diagram.	**04**
	(c)	Define the terms: Specialized Transduction, Self transmissible plasmid, Merodiploid.	**03**
		OR	
Q.4	**(a)**	Explain the process of DNA packaging by headful mechanism in P22 phage.	**07**
	(b)	Explain structure of F plasmid with a neat diagram.	**04**
	(c)	Define the terms: Hfr strain, trans splicing, Non conjugative plasmid	**03**
Q.5	**(a)**	Explain mapping of Restriction sites with an example.	**07**
	(b)	Differentiate between Hfr and F prime cells. How are they generated?	**07**
		OR	
Q.5	**(a)**	Explain the mechanism of specialized transduction with a neat diagram.	**07**
	(b)	Explain conjugational mapping with a neat diagram.	**07**

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