Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. Sem. - V - Examination – June- 2011

Subject code: 150401

Subject Name: Advanced Molecular Biology-I

Date:20/06/2011 **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)**	Describe in detail about the process of transcription regulation in prokaryotes by considering example of lac operon.	**07**
	(b)	Define isoelectric focusing. Explain the principle of same technique.	**07**
Q.2	**(a)**	Discuss the process of metabolic pathway regulation with suitable example.	**07**
	(b)	Enlist various DNA repair mechanism. Discuss any one in detail.	**07**
		OR	
	(b)	"Replation in bacterial system is strictly regulated."justify with detail explanation.	**07**
Q.3	**(a)**	Define mutation. Discuss the molecular basis of mutation.	**07**
	(b)	Discuss the process of gene regulation in eukaryotic system with suitable example.	**07**
		OR	
Q.3	**(a)**	Explain in detail various cloning strategies.	**07**
	(b)	What is the principle of southern blotting, discuss in detail.	**07**
Q.4	**(a)**	Enlist various types of mutation. Discuss any one in detail.	**07**
	(b)	How translation is regulated by small RNA molecules? Explain with suitable example.	**07**
		OR	
Q.4	**(a)**	Write a detail note on chromosome walking.	**07**
	(b)	Define following terms:-	**07**

- Positive regulation of transcription
- Negative regulation of transcription
- Inducer
- Represser
- Effector
- Antitermination
- Attenuation

Q.5	**(a)**	Define vector. Discuss various types and properties of vector.	**07**
	(b)	Define the term PCR. Explain the principle and application of the PCR technique.	**07**
		OR	
Q.5	**(a)**	Explain the process of metabolic regulation by feedback inhibition by suitable example.	**07**
	(b)	What are the applications of genetic engineering?	**07**

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