GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V(New) • EXAMINATION - WINTER 2016

Subject Code:2150401 Date:24/11/2016

Subject Name: Advanced Molecular Biology - I

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
C	1	Northern Hybridization is used for detection of	1
	2	DNA transfer through pillus is called	1
	3	Define the term recombination.	1
	4	Who discovered the process of conjugation?	1
	5	The specific site in P22 genome where packaging starts is called	1
	6	The ss ends in λ phage genome are calledsite.	1
	7	Name the two methods used to induce artificial competence during transformation.	1
	8	What are self transmissible plasmids?	1
	9	What is cDNA?	1
	10	The technique used for DNA amplification is	1
	11	What is role of ligase in rDNA technology?	1
	12	Name the plasmid responsible for DNA transfer in conjugation.	1
	13	The development of natural competence is related with secretion of protein called	1
	14	What is role of att site in the process of transduciton?	1
Q.2	(a)	Explain different types of Restriction endonuclease enzymes.	03
	(b)	Write down steps of gene cloning.	04
	(c)	Explain southern hybridization technique with a neat diagram.	07
		OR	
	(c)	Write a brief note on gene therapy and its applications.	07
Q.3	(a)	What is biological importance of recombination process?	03
	(b)	What are sticky ends and blunt ends?	04
	(c)	Explain the process of formation of Holliday Junction	07
		during recombination process.	
0.1	()	OR	0.3
Q.3	(a)	What do you mean by site specific recombination?	03
	(b)	What should be properties of an ideal vector? Explain the mechanism of Mating type switching.	04 07
0.4	(c) (a)	Define the terms: exconjugants, merozygotes and	03
V. 7		transconjugants.	
	(b)	Explain basic steps of PCR cycle.	04
	(c)	Explain the process of development of natural	07
		competence in <i>S.pneumonia</i> . OR	
Q.4	(a)	Explain concept of chromosome walking.	03

	(b)	Write a short note on isoelectric focussing.	04
	(c)	Explain the process of DNA uptake in S.pneumoniae	07
		during transformation process.	
Q.5	(a)	What is F prime conjugation?	03
	(b)	How was it proved that direct contact is necessary for	04
		conjugation to take place?	
	(c)	Explain the process of specialized transduction with a	07
		neat diagram.	
		OR	
Q.5	(a)	Give difference between generalized and specialized transduction.	03
	(b)	Explain the process of development of cell contact during	04
		conjugation process.	
	(c)	What is gene therapy? Explain its types, process and give	07
		its applications.	
