Sardar Patel University

M. Sc. Genetics, Second Semester Examination Thursday, 07th April, 2016 10:30 a.m. – 01:30 p.m.

PS02CGEN03: Recombinant DNA Technology

Total Marks: 70

Q1. (i)	consist of recombinant cells containing different fragments of a force			
	genome. a) DNA probes c) Genomic libraries	b) Homologous recomb d) Knockout organisms		
(ii)	The first patent for a transgenic organism was awarded in 1988. Which organism was patented?			
	a) Yeast used in industrial processes b) Mouse-producing human protein in milk	b) Crude oil metabolizing bacterium d) Life forms cannot be patented		
(iii)	Cosmids can take up inserts ofa) 100kb b) 75kb	sizes. c) 50kb	d) 25kb	
(iv)	Which scientist received Noble prize for the a) Mullis b) Sanger	e discovery of PCR c) Gilbert	d) Kornberg	
(v)	What is the pH of T ₁₀ E ₁ buffer used in DN a a) 4 b) 8	A isolation? c) 12	d) 16	
(vi)	Ramping rate of PCR is affected by a) Peltier b) Metal of heating block	e) Both of these	d) None	
(vii)	What is the ideal length of PCR primers? a) 10-15bp b) 16-20bp	c) 20-30bp	d) 30-50bp	
(viii)	"Naked" DNA a) is free of nucleic acids c) contains just sugar-phosphate backbone	b) is free of the cell.d) is free of protein		
Q2. (i) (ii) (iii) (iv) (v) (vi) (vii)	Answer any seven questions from following: What is an isoschizomer? What is difference between RNase A and RNase H? What is the function of Taq Polymerase in PCR? Explain the role Cos site in vector. Give full form of HAC and MAC. Name the scientists who created pBR322. Give function of S1 nuclease.		[7X2=14]	
(viii) (ix)	Give function of Alkaline phosphatase. Give function of RNase A.			

Q3(A)	How many types of restriction endonucleases are there? Give their salient features with suitable examples	
Q3(B)	Explain the principle for isolation of plasmid DNA from bacterial cells. OR	[6]
Q3(B)	Explain genomic DNA isolation from plant leaves with help of schematic diagram.	[6]
Q4(A)	Give salient features of pBR322 which has made it the workhorse of recombinant DNA technology.	[6]
Q4(B)	What is gene gun technique? Where is it used? What are it advantages and disadvantages? OR	[6]
Q4(B)	Explain Maxam and Gilbert's method of DNA sequencing.	[6]
Q5(A)	Write a short note on RFLP and indicate one of its important applications.	[6]
Q5(B)	What is RAPD? Give atleast 2 applications. OR	[6]
Q5(B)	Explain Yeast 2-Hybrid System with a suitable diagram.	[6]
Q6(A)	What is Codon degeneracy? Explain its significance in vector designing.	[6]
Q6(B)	What is Molecular Pharming?	[6]
Q6(B)	OR Write a short note on 'Recombinant Vaccines'.	[6]
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****** BEST OF LUCK ******

