	Utech
Name :	
Roll No.:	A Dear of Executing and Explana
Invigilator's Signature :	

CS/B.Tech/BT (NEW)/SEM-6/BT-601/2013 2013

RECOMBINANT DNA TECHNOLOGY

Time Allotted: 3 Hours Full Marks: 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP - A

(Multiple Choice Type Questions)

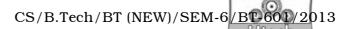
1.	Cho	ose	the	correct	alterna	tives	for	any	ten	of	the
	following :						10	× 1 =	10		
	i)	Enzyme which is ribonucleic acid in						natur	e is c	alled	
		a)	RNA	Λ		b)	DN	A			
		c)	Ribo	ozyme		d)	RNa	ase.			
	ii)			orescent illuminat	•	ed to	dete	ect D	NA	band	by
		a)	Ethi	idium bro	omide	b)	SyE	R gre	en		
		c)	Met	hylene bl	ue	d)	Flu	oresce	ein.		
	iii)	Whi	ch of	the follo	wing enz	ymes	is no	t used	l in c	lonin	g ?
		a)	Pep	tidyl tran	sferase	b)	DN	A poly	mera	ase	
		c)	DNA	A ligase		d)	Rev	erse t	rans	cripta	se.
	iv) The polylinkers in pUC8 and pUC9 are										
		a)	the	same		b)	inve	erted i	n or	ientat	ion
		c)	diffe	erent in s	izes	d)	non	e of tl	hese.		

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v)	DNA	fingerprinting is quicke	er us	
	a)	RFLP	b)	RAPD
	c)	AFLP	d)	All the same.
vi)	Gene	omic library is depende	nt on	
	a)	tissue for DNA isolation	n	
	b)	environmental condition	ns	
	c)	age of the organism		
	d)	none of these.		
vii)	GEA	C stands for		
	a)	Genetic Engineering Ap	prov	al Committee
	b)	Genetic Engineering Ac	dviso	ry Committee
	c)	Genetically Engineered	App	roval Committee
	d)	Green Engineering App	orova	l Committee.
viii)	Whic	ch of the following is an	appl	ication of PCR ?
	a)	Site directed mutagene	esis	
	b)	Amplification of specifi	c seg	ments of DNA
	c)	For cloning into vectors	S	
	d)	All of these.		
ix)	Why	are gene libraries cons	truct	ed?
	a)	To find new gene		
	b)	To sequence whole gen	ome	
	c)	To create a "bank" of the	ne ge	nes in an organism
	d)	All of these.		
x)	The is	enzyme that can be use	ed in	5 ¹ end levelling of DNA
	a)	alkaline phosphatase	b)	DNA ligase

c) terminal transferase d) polynucleotide kinase.



- xi) To be a cloning vector, a plasmid does not require
 - a) origin of replication
 - b) a restriction site
 - c) an antibiotic resistant marker gene
 - d) to have a high copy member.
- xii) Two plasmids are of the same compatibility group if they
 - a) can co-exist in the same bacterial cell
 - b) carry the same antibiotic gene
 - c) carry the same toxin gene.

GROUP - B

(Short Answer Type Questions)

Answer any *three* of the following.

 $3 \times 5 = 15$

- 2. What are the differences between a genomic library and a cDNA library?
- 3. Elucidate any one method of studying expression of a gene.
- 4. a) What is adaptor and linker?
 - b) Describe the use of these in *r*DNA technology. 2 + 3
- 5. Write short notes on any *one* of the following :
 - a) Blue white screening
 - b) Nested PCR
 - c) Colony hybridization.
- 6. What is GMT? Describe briefly.

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(Long Answer Type Questions)

Answer any *three* of the following.



- 7. a) Describe radio labelling of DNA at 5 end, 3 end and internal base of a DNA.
 - b) Describe the steps of western blotting techniques with diagram, and write its application and disadvantages.
 - c) Write the differences between Souther blotting, Northern blotting and Western blotting. 6+6+3
- 8. a) Describe DNA sequencing by chain termination method, with diagram.
 - b) Describe the pyrosequencing methods of DNA with diagrams. Why is this method called pyrosequencing?
 - c) What are the differences between Snager dideoxy methods and pyrosequencing methods.
 - d) Based on which important enzymatic reaction are the above methods developed? Write that reaction.
 - e) Starting with 600 template DNA molecules, after 25 cycles of PCR, how many molecules of DNA will be produced? 5+4+2+2+2
- 9. Discuss the role of HEPA filter in BSC. Describe different types of BSC and their uses. 3 + 12
- 10. Write short notes on any *three* of the following: 3×5
 - a) Expression vectors
 - b) Retrovirus delivery system
 - c) Production of insulin
 - d) Applications of human genome project
 - e) Principle of DNA microarray.
- 11. Describe three methods of selecting a particular recombinant bacterium. Briefly mention the pros and cons of the methods. How can one use PCR in the selection process?

9 + 3 + 3

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