## STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI –600 086 (For candidates admitted from the academic year 2006 – 07 & thereafter)

**SUBJECT CODE: BI/PC/BT24** 

## M. Sc. DEGREE EXAMINATION, APRIL 2008 BIOINFORMATICS SECOND SEMESTER

COURSE	:	MAJOR – CORE
PAPER	:	BIOTECHNOLOGY
TETA 412		4 HOUDG

TIME : 3 HOURS MAX. MARKS: 100

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I.	SECTION – A CHOOSE THE CORRECT ANSWER:			$(5 \times 1 = 5)$	
1.	The vectors that have been designed to replicate in cells of two different species are called.				
	a) Yeast vectors		Yeast Episomal vectors		
2.	c) Fosmid Vectors $\lambda gt10$ is an example of	a)	Shuttle vector		
۷.	<ul><li>a) Insertion vector</li><li>c) Cosmid vector</li></ul>		Replacement vector Phasmid vector		
3.	Optimum temperature for synthesis of DNA in PCR				
	a) $90 - 95^{\circ}$ C b) $37^{\circ}$ C	c)	$70 - 75^{\circ}$ C d) $40 - 60^{\circ}$ C		
4.	<ul><li>λ EMBLA is an example for</li><li>a) Replacement vector</li><li>c) Phage M13 vectors</li></ul>	,	Insertion vector Cosmid vectors		
5.	Removal of nucleotides from the 3' ends are done using.				
	a) $\lambda$ exonuclease		E.coli exonuclease III		
	c) DNA ligase	d)	DNA polymerase I		
II.	FILL IN THE BLANKS:			$(5 \times 1 = 5)$	
6.	-	l in det	termining the state of methylat	ion of a DNA	
7.	molecule.	luce cT	DNA copies of mRNA.		
8.	The $\lambda$ vectors are classified in				
9.	PAGE effectively separates D				
10.	Plasmids integrated into bacte				
III.	DEFINE IN 1 OR 2 SENTE	NCES		$(10 \times 1 = 10)$	
11.	Col plasmids.				
12.	Expression vector.				
13.	Clone.				
14.	Genome.				
15.	Germ line gene therapy.				

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## **SECTION - B**

Answer any FOUR of the following; each answers not exceeding 500 words. Draw diagram wherever necessary. 4x10=40

- 16. What are the features of a good vector? Briefly describe the features of PBR 322.
- 17. Define cosmids: Briefly describe its features for construction of genomic libraries.
- 18. Explain the PCR procedure under the following heads: i) PCR primers
  - ii) PCR efficiency iii) annealing temperature and iv) amplicon size.
- 19. List the various types of genetic markers? Give a brief description of RFLP markers and discuss their application.
- 20. Give a brief account on DNA sequencing methods.
- 21. Briefly describe the strategies for generating herbicide resistant transgenic plants.
- 22. Discuss on the gene therapy techniques on modern medicine.

## **SECTION - C**

Answer any TWO of the following, each answer not exceeding 1200 words. Draw diagram wherever necessary. 2x20=40

- 23. Briefly describe the different kinds of vectors available for yeast and discuss their advantages and limitations.
- 24. List the various variations of the PCR procedure and briefly describe the methods and applications of them.
- 25. Briefly describe the aims, strategies and achievements of the human genome project.
- 26. Describe the production of insect resistance transgenic plants under the following heads (i) cry proteins of B. thuringiensis, (ii) insect resistance in plants due to cry genes. (iii) truncated and modified cry genes, and (iv) other transgenes for insect resistance.

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