PARUL UNIVERSITY

PARUL INSTITUTE OF APPLIED SCIENCES

MID SEMESTER INTERNAL EXAMINATION,MARCH 2020

M. Sc. Semester 2

Subject: Biotechnology

Paper Code: (11202154)Title of the paper:Genetic Engineering

Date:2/ 3/2020 **Time:2:30 pm to 4:00pm**

Maximum Marks: 40

Instructions:

1. **All questions are compulsory and options are given in first and second question only.**
2. **Numbers to the right of question indicate the marks of respective question.**

Q. 1 Attempt any one question of the following. **(08)**

(i) Explain with diagram of DNA along with its characteristics

(ii)Describe in detail Southern blotting with application

Q. 2 Attempt any three questions of the following. **(12)**

(i) Give detail about End labelling

(ii)Explain Griffith's experiment

(iii) Short note on Cohesive and blunt end

(iv)Short note on pBR322

(v)What is artificial chromosome? Discuss - YAC

Q. 3 Do as directed. Attempt all five questions. **(05)**

(i)What is In situ hybridization?

(ii) What is Vector?

(iii) list out good characteristics of vector

(iv)Define- Adaptor

(v)What is Phagemid?

Q. 4 Write correct option in your answer sheet for following 15 multiple choice questions. **(15)**

MCQ 1	Any DNA molecule that has the ability to replicate in anappropriate host cell, to which the desired gene areintegrated for cloning, is called as			
	(A)	Plasmid	(B)	linker
	(C)	**vector**	(D)	adapter
MCQ 2	Autonomously replicating sequences (ARS) is a characteristic feature of			
	(A)	plasmid vectors	(B)	phage vectors
	(C)	E.coli vectors	(D)	**yeast vectors**
MCQ 3	Which of the following statement are true for Agarobacterium mediated gene transfer method			
	(A)	Vir genes	(B)	T-DNA borders
	(C)	Ori C	(D)	**All of these**
MCQ 4	. Ti plasmids that is used as a plant vector is obtained from			
	(A)	**Agrobacterium tumefaciens**	(B)	Agrobacterium rhizhogenes

	(C)	Agrobacterium radiobactor	(D)	Thermusaquaticus
MCQ 5	A plasmid can be considered as a suitable cloning vector if			
	(A)	it can be readily isolated from the cells	(B)	it possesses a single restriction site for one or more restriction enzymes
	(C)	insertion of foreign DNA does not alter its replication properties	(D)	**All of the above**
MCQ 6	Which of the statement is true for pBR322?			
	(A)	It contains only an ampicillin resistance gene	(B)	**It contains both ampicillin resistant and tetracycline resistant gene**
	(C)	The cloning site is present only in the ampicillin resistant gene	(D)	It is a natural vector
MCQ 7	Size of the vector is related to having a suitable single restriction site			
	(A)	**True**	(B)	False
MCQ 8	Which of the following statements is correct with respect to T4 DNA ligase?			
	(A)	It can carry out only blunt ended ligations	(B)	It doesn’t requires ATP
	(C)	It requires a phosphate group at 3’ end and a hydroxyl group at 5’ end for the molecule to be joined	(D)	**It is obtained from T4 bacteriophage upon infection by E. coli**
MCQ 9	A recombinant DNA molecule is produced by joining together			
	(A)	one mRNA with a DNA segment	(B)	one mRNA with a tRNA segment
	(C)	two mRNA molecules	(D)	**Two DNA segments**
MCQ 10	Endonucleases, a group of enzymes cleave DNA			
	(A)	Externally	(B)	**Internally**
	(C)	Both 1 and 2	(D)	Neither a nor b
MCQ 11	A gene for insulin has been inserted into a vector for the purpose of obtaining its protein productonly. Such a vector is called			
	(A)	**expression vector**	(B)	suppression vector
	(C)	storage vector for genomic library	(D)	none of the above
MCQ 12	Klenow fragment is derived from			
	(A)	DNA Ligase	(B)	**DNA Pol-I**
	(C)	DNA Pol-II	(D)	Reverse Transcriptase
MCQ 13	Southern blotting is			
	(A)	Attachment of probes to DNA fragments	(B)	**Transfer of DNA fragments from electrophoretic gel to nitrocellulose sheet**
	(C)	Comparison of DNA fragments to two sources	(D)	Transfer of DNA fragments to electrophoretic gel from cellulose

				membrane
MCQ 14	Which of the following enzyme is used to synthesize DNA using an mRNA template			
	(A)	Taq polymerase	(B)	alkaline phosphatase
	(C)	**reverse transcriptase**	(D)	nuclease
MCQ 15	Which is the enzyme used to remove phosphate group from the 5’ end of the DNA			
	(A)	restriction enzymes	(B)	**alkaline phosphatase**
	(C)	polynucleotide kinase	(D)	ribonuclease H

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