

BRAINWARE UNIVERSITY

Term End Examination 2021 - 22 Programme – Master of Science in Biotechnology Course Name – Genetic Engineering & Recombinant DNA Technology Course Code - MBT203 (Semester II)

Time allotted: 1 Hrs.15 Min. Full Marks: 60 [The figure in the margin indicates full marks.] Group-A (Multiple Choice Type Question) $1 \times 60 = 60$ Choose the correct alternative from the following: (1) DNA synthesis prokaryotes is a) unidirectional b) bidirectional c) nondirectional d) Multidirectional (2) Replication occurs once every cell generation during a) S phase b) T phase c) C phase d) A phase (3) Which of the following options, A - D, are the pyrimidine bases found in DNA? a) uracil and thymine b) thymine and cytosine c) adenine and thymine d) cytosine and Uracil (4) Semi-conservative DNA replication was first demonstrated in a) Drosophila melanogaster b) Escherichia coli c) Streptococcus pneumonae d) Drosophila melanogaster (5) Round structures of Deoxyribonucleic Acid (DNA) around histone proteins are called a) Mono hybrid genes b) Hybrid genes c) Chromosomes d) Nucleosomes (6) Process in which sequence of nucleotides of DNA is copied in form of mRNA nucleotides is called a) Denomination b) Translation c) Segregation d) Transcription (7) Process in which ribosome reads sequence carried by mRNA and joins amino acids to form protein is called

b) Translation

d) Transcription

a) Denomination

(8) Pick the right difference between a DNA and RNA

c) Segregation

a) Sugar and phosphate	b) Purines and phosphate
c) Sugar and pyrimidines	d) Sugar and purines
(9) Hershey and Chase experiment proving DNA as principle	s the genetic material was based on the
a) Transduction	b) transformation
c) transcription	d) translation
(10) A bacterial colony containing DNA made up of replicate in a medium containing N14 bases. Af would be	
a) All individuals will be identical to parents	b) All individuals will be hybrids
c) Only 50% individuals would be hybrids	d) All individuals would have DNA made up of 100% N14
(11) At the physiological pH, the DNA molecules are	e;
a) Positively charged	b) Negatively charged
c) Amphipathic	d) Neutral
(12) Eukaryotes differ from prokaryote in mechanism	n of DNA replication due to
a) Use of DNA primer rather than RNA primer	b) Different enzyme for synthesis of lagging and leading strand
 c) Discontinuous rather than semi- discontinuous replication 	d) Unidirectional rather than semi- discontinuous replication
(13) Which of the following is TRUE for the RNA p	olymerase activity?
a) DNA dependent DNA synthesis	b) Direct repair
c) DNA dependent RNA synthesis	d) RNA dependent RNA synthesis
(14) The DNA chain acting as template for RNA syn AGCTTCGA. What will be the order of bases in	
a) TCGAAGCT	b) UGCUAGCT
c) TCGAUCGU	d) UCGAAGCU
(15) EcoRI has restriction site of sequence	
a) 5'GAATTC3	b) 5'ATTAAT3'
c) 5'CAATTG3	d) 5'TAATTC3
(16) Which of the following enzymes in bacteria are viruses?	responsible for restricting the growth of
a) Restriction endonuclease	b) Gyrase
c) Lipase	d) Exonuclease
(17) Which enzyme is used to join together two diffe	erent types of DNA molecules?
a) Ligase	b) Nuclease
c) Protease	d) Phosphatase
(18) Recombinant plasmids are added to a bacterial combinant plasmid p	culture that has been pre-treated with
a) Ferous	b) Iodine
c) Magnesium	d) calcium
(19) Taq polymerase is a polymerase.	
a) Heat stable	b) Heat labile
c) Buffering	d) Large
(20) cDNA libraries are produced from	
a) rRNAs	b) tRNAs
c) mRNAs	d) cDNAs

(21) Viral-mediated gene transfer is called		
a) Transformation	b) Transduction	
c) Conjugation	d) Translation	
(22) If a plasmid has 4 restriction sites, how many fragments will be generated after digestion?		
a) 1	b) 2	
c) 4	d) 8	
(23) Maximum size of foreign DNA that can be inser	ted into a replacement vector is	
a) 18-20	b) 20-25	
c) 25-30	d) 30-35	
(24) 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	
(25) The restriction endonuclease is having a defence against foreign DNA such as viruses. But how it	-	
 a) By methylation of bacterial DNA by restriction enzyme 	b) By methylation of foreign DNA by restriction enzyme	
 c) By phosphorylation of bacterial DNA by restriction enzyme 	d) By phosphorylation of foreign DNA by restriction enzyme	
(26) After cleaving the sequence, the nature of the en is	ds created by the type II endonuclease	
a) The ends created are always single stranded	b) The ends created are always double stranded	
 c) Either the ends are single stranded or they are double stranded 	d) One end is single stranded and one end is double stranded	
(27) A sequence is having two ends, 5' and 3'. Which of the following statements is correct regarding the nature of the ends?		
a) The 5' end is having hydroxyl group(b) The 5' end is having phosphate group	
c) The 3' end is having phosphate group	d) Any group can be present at any end	
(28) Who discovered the structure of DNA?		
a) Crick and Neck	b) Watson and Crick	
c) Watson and Franklin	d) Holmes and Watson	
(29) The mRNA synthesis from DNA is known as		
a) Transcription	b) Translation	
c) Metabolism	d) Reduction	
(30) Replication process in ds DNA is	Type	
a) Conservative	b) Non-conservative	
c) Semi-conservative	d) None	
(31) What is used to transfer nucleic acid from gels to	membranes for further analysis?	
a) Gel electrophoresis	b) PFGE	
c) Blotting	d) PCR	
(32) Blotting describes the of nucleic ac	<i>'</i>	
a) Monitoring	b) Immobilization	
c) Racing	d) Comparison	
(33) Which of the following is used as targets in the hybridization techniques?		
a) Nucleic acids	b) Agarose	
Page 3 of 5		

c) Proteins	d) E. coli
(34) In southern blotting	_ is present in the reservoir.
a) DNA	b) Buffer
c) Gel	d) Agarose
(35) Which membranes have greater b	pinding capacity than nitrocellulose membranes?
a) Sucrose	b) Agarose
c) Nylon	d) Teflon
(36) Which of the following is not the	core submit of the octamer histone protein?
a) H1	b) H2A
c) H2B	d) H3
(37) Which of the following is not the technology?	cloning vector utilized in recombinant DNA
a) Plasmid	b) Cosmids
c) Bacterial Artificial Chromosom	es d) Yeast Intact chromosomes
(38) Which of the following term is no recombinant DNA technology?	ot true regarding restriction enzymes used in
a) They are site-specific	b) They recognize palindromic sequences
c) They are ATP dependent nuclea	ses d) They are endonucleases
(39) Which of the following libraries	provides information about functional genomics?
a) DNA library	b) cDNA library
c) RNA library	d) Protein library
(40) Which of the following DNA tec	hnology is used for the amplification of DNA in vitro?
a) Polymerase Chain Reaction	b) Restriction Analysis
c) Northern blot	d) Southern blot
(41) The blotting technique which is u is	used to detect the RNA in a sample
a) Southern blotting	b) Eastern blotting
c) Northern blotting	d) Western blotting
(42) Plasmids and have the of the control of chromosomal D	ability to replicate within bacterial cells independent NA.
a) bacteriophages	b) fragments
c) bacteria	d) clones
(43) The sequence of DNA from when	re replication starts is called
a) selectable marker	b) origin of replication
c) ter sequence	d) genetic sequence
(44) Viruses which infect bacteria are	called
a) bacteria	b) archaea
c) pUC	d) bacteriophages
(45) What helps in identifying the suc	cessful transformants?
a) Ori	b) Viruses
c) Selectable markers	d) Enzymes
(46) Selectable markers are the genes	which code for resistance to
a) disease	b) phages
c) antibiotics	d) foreign entity
(47) The process by which a foreign I	DNA is introduced into bacteria is called

a) amplification	b) transformation
c) infection	d) digestion
(48) Insertion of recombinant DNA within the	e gene encoding for β–galactosidase leads to
a) amplification	b) transformation
c) insertional inactivation	d) cloning
(49) Which organism can transfer 'T-DNA' w	,
a) Agrobacterium tumifaciens	b) E.coli
c) Aspergillus niger	d) S. typhi
(50) Which plasmid of Agrobacterium tumifa	ciens leads to tumor formation in dicots?
a) F plasmid	b) Ti
c) pUC	d) pBR
(51) How can we separate DNA fragments in	respect to size?
a) Agarose gel electrophoresis	b) SDS-PAGE
c) Size exclusion chromatography	d) Ion-exchange chromatography
(52) In the following type of libraries pick the	,
a) A DNA library	b) B DNA library
c) c DNA library	d) Z DNA library
(53) Blunt ended DNA is join together by	·
a) Adapter	b) Linker
c) Self replicative process	d) by using enzyme Terminal transferase
(54) What is a probe?	, , , , , , , , , , , , , , , , , , , ,
a) Chemically synthesized DNA	b) Purified DNA
c) Fragmented DNA duplex	d) Either purified or synthesized single stranded DNA
(55) Why is a probe labeled?	
a) Improve visibility	b) Improve stability
c) Improve location identification	d) Improve binding capability
(56) During blotting denaturation of the doub	le stranded DNA is brought about by
a) Application of current	b) Treatment with alkali
c) Treatment with EtBr	d) none of the above
(57) Northern blotting is performed for	,
a) Determining the size of DNA	b) Determining the size of RNA
c) Quantification of RNA	d) Sequencing of RNA
(58) Restriction enzymes are analogous to wh	, , ,
a) glue	b) scissors
c) paper	d) highlighter
(59) The site where restriction enzymes cut as	, -
a) cut sites	b) restriction sites
c) recognition sites	d) cleave sites
(60) What is a plasmid?	•
a) a section of the human genome	b) a material that cuts DNA
c) viral DNA	d) an accessory piece of DNA found in bacteria