

Seat No.	
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P.G. Entrance Examination, July - 2023**M.Sc. BIOCHEMISTRY/ M.Sc. BIOTECHNOLOGY/ M.Sc.
MEDICAL INFORMATION MANAGEMENT****Sub.Code : 58725****Day and Date : Tuesday : 18-07-2023****Total Marks : 100****Time : 3.30 p.m. to 5.00 p.m.**

- Instructions :**
- 1) All questions are compulsory.
 - 2) Each question carries 1 mark.
 - 3) Answers should be marked in the given OMR answer sheet by darkening the appropriate option.
 - 4) Follow the instructions given on OMR Sheet.
 - 5) Rough work shall be done on the sheet provided at the end of question paper.

- 1) _____ is a liquid column chromatographic method of separating solute molecules according to differences in molecular size.
 - A) Thin layer chromatography (TLC)
 - B) Ion exchange chromatography
 - C) Gel filtration
 - D) Affinity chromatography

- 2) The polymerase chain reaction is used for _____.
 - A) Amplifying gene of interest
 - B) Constructing RAPD maps
 - C) Detecting the presence of the transgene in an organism
 - D) All of the above

- 3) Who deduced the double - helical structure of DNA?
 - A) Watson and Francis Crick
 - B) Frederick Sanger
 - C) Anton van Leeuwenhoek
 - D) Mendel

P.T.O.

- 17) Electrophoresis is not used for _____
- A) Separation of proteins B) Separation of amino acids
C) Separation of Lipids D) Separation of nucleic acids
- 18) Polymerase used for PCR is extracted from _____
- A) *Homo sapiens* B) *Thermus aquaticus*
C) *Escherichia coli* D) *Saccharomyces cerevisiae*
- 19) Primers used for the process of polymerase chain reaction are _____
- A) Single - stranded RNA oligonucleotide
B) Single - stranded DNA oligonucleotide
C) Double - stranded RNA oligonucleotide
D) Double - stranded DNA oligonucleotide
- 20) Which of the following is true for asymmetric PCR?
- A) Used for generating double - stranded copies for DNA sequence
B) Used for generating single - stranded copies for DNA sequence
C) Both (A) and (B)
D) None of the above
- 21) _____ of the following is homo polysaccharide.
- A) Starch B) Glycogen
C) Chitin D) All of the above
- 22) Two amino acids in a protein are linked to each other by _____
- A) Phosphodiester bond B) Peptide bond
C) Glycosidic bond D) Hydrogen bond
- 23) Plasmid in bacterial cell is _____
- A) extra chromosomal DNA which cannot replicate
B) extra DNA associated with genome
C) extra chromosomal DNA which can self replicate
D) extra DNA associated with genome but can not replicate

- 24) During electrophoresis DNA will _____
- A) move towards positive terminal
 - B) stay on the place of application
 - C) move towards negative terminal
 - D) move forward
- 25) Bacteria used in production of insulin by genetic engineering is _____
- A) Saccharomyces
 - B) Mycobacterium
 - C) Rhizobium
 - D) Escherichia
- 26) MS medium was originally formulated by _____
- A) Gottlieb Haberlandt
 - B) Nehemiah Grew
 - C) Murashige and Skoog
 - D) Mendel
- 27) What is plant tissue culture?
- A) The technique of in vitro maintaining and growing plant cells
 - B) The technique of in vivo growing plant cells
 - C) The technique of growing plants in gardens
 - D) The technique of cutting plants
- 28) Cybrids are produced by _____
- A) The nucleus of one species but cytoplasm from both the parent species
 - B) The fusion of two same nuclei from the same species
 - C) The fusion of two different nuclei from different species
 - D) None of the above
- 29) What is Callus?
- A) Tissues that grow to form an embryoid
 - B) An unorganised actively dividing the mass of cells maintained in a culture
 - C) An insoluble carbohydrate
 - D) A tissue that grows from an embryo

- 30) The pair of hormones required for a callus of differentiate are _____
A) Ethylene and Auxin B) Auxin and cytokinin
C) Auxin and Abscisic acid D) Cytokinin and gibberellin
- 31) Concentration of carbon dioxide required for culturing animal cells is _____
A) 15-20% B) 25-50%
C) 1-10% D) 2-8%
- 32) At the time of disaggregation of the tissue, which type of cells generally more easily get dissociated?
A) Epithelial cells B) Endothelial cells
C) Mesenchymal cells D) All of the above
- 33) Animal cell cultures are widely used for the production of _____
A) MABS B) Insulin
C) Somatostatin D) Thyroxine
- 34) Most of the cell lines proliferate in medium with a pH?
A) 6.4 B) 7.4
C) 6.8 D) 7.8
- 35) Stem cells are _____
A) Differentiated B) Undifferentiated
C) Specialized D) Only embryonic
- 36) 5- bromouracil is an analogue of _____
A) Uracil B) Thymine
C) Adenine D) Guanine
- 37) Nucleosome is made up of _____
A) DNA, histone core protein
B) DNA, histone core protein, linker H1
C) RNA, histone core protein
D) RNA, histone core protein, linker H1

- 38) Which of the following types of the DNA is right handed helix?
A) A & Z
B) B & Z
C) A & B
D) Z & H
- 39) Non - coding sequence in DNA is known as _____
A) Template
B) Non - template
C) Intron
D) Exon
- 40) How many bases are there in per turn of the B form of DNA?
A) 10.2 bp
B) 10.4 bp
C) 10.6 bp
D) 11 bp
- 41) Which of the following RNA molecule serves as an adaptor in protein synthesis?
A) rRNA
B) mRNA
C) siRNA
D) tRNA
- 42) Transposable element is considered as a _____
A) Hybrid DNA
B) Satellite DNA
C) Selfish DNA
D) cDNA
- 43) Name the part of a chromosome where t-loop is found.
A) Acromere
B) Tetraplex
C) Centromere
D) Telomere
- 44) Linking number is the sum of which geometric components?
A) Twist and writhe
B) Toroid and writhe
C) Twist and wrap
D) Twist and crossover
- 45) The codon is a _____
A) Singlet
B) Duplet
C) Triplet
D) Quadruplet

- 53) Which of the following organisms have thick peptidoglycan in their cell wall?
- A) Gram- negative bacteria
 - B) Gram - positive bacteria
 - C) Yeast
 - D) Molds
- 54) The basic and first choice of taxonomists for the classification of bacteria is _____
- A) Microbial Type Culture collection
 - B) Bergey's Manual of systematic Bacteriology
 - C) International Collection of Microorganisms from plants
 - D) American Type Culture Collection
- 55) Cell wall less bacteria are called _____
- A) Protozoa
 - B) Viruses
 - C) Yeast
 - D) Micoplasma
- 56) The rectified spirit contains _____
- A) 95.6% ethanol & 4.4% water
 - B) 55.6% ethanol & 44.4% water
 - C) 85.6% ethanol & 14.4% water
 - D) 90.6% ethanol & 9.4% water
- 57) The chemical name of table sugar is _____
- A) glucose
 - B) maltose
 - C) lactose
 - D) sucrose
- 58) The homogenous mixture of two or more chemical compounds is known as _____
- A) solute
 - B) solvent
 - C) solution
 - D) eutectic mixture

- 59) The chemical composition of stainless steel is _____
- A) Fe with 12 - 15% Cr, 0% C
 - B) Fe with 12 - 15% Cr, 0.3% C
 - C) Fe with 12 - 15% Cr, 3% C
 - D) Fe with 12 - 15% Cr, 0.03% C
- 60) The chemical nature of biocatalyst is _____
- A) carbohydrate
 - B) protein
 - C) fatty acid
 - D) vitamin
- 61) Which of the following is used to preserve specimens in the biology laboratory?
- A) Phenol
 - B) Benzaldehyde
 - C) Formaldehyde
 - D) Acetic acid
- 62) Which of the following elements is a metal?
- A) Se
 - B) I
 - C) Zn
 - D) S
- 63) Molar mass of HNO_3 ?
- A) 63 g/mol
 - B) 53 g/mol
 - C) 48 g/mol
 - D) 52 g/mol
- 64) Carbon, Diamond and Graphite are together called _____
- A) Isomers
 - B) Isotopes
 - C) Allotropes
 - D) Isomorphs
- 65) Which is the best definition of activation energy?
- A) the energy required to break the bonds of reactant molecules
 - B) the energy required to end a chemical reaction
 - C) the energy required to bind a substrate to an active site
 - D) the energy required to re-form bonds in product molecules

- 74) Fossils are most commonly preserved in _____
A) Metamorphic rocks B) Igneous rocks
C) Sedimentary rocks D) Any type of rock
- 75) Animal cell differs from plant cell in possessing _____
A) Plastid B) Golgi bodies
C) Vacuole D) Centrosome
- 76) The genotypic ratio of a monohybrid cross is _____
A) 3:1 B) 1:2:1
C) 2:1:1 D) 9: 3: 3:1
- 77) Mulberry silkworm is _____
A) *Bombax mori* B) *Anthraea mylitta*
C) *Anthraea assamensis* D) *Attacus atlas*
- 78) Which of the following is tapeworm?
A) Schistosoma B) Fasciola
C) Enterobius D) Taenia
- 79) Uric acid is the chief nitrogenous waste in _____
A) Fish B) Birds
C) Mankind D) Frogs
- 80) Hemoglobin is a _____
A) Fat B) Vitamin
C) Carbohydrate D) Protein
- 81) Which of the following enzyme is a sensitive marker of alcoholic liver disease?
A) Alanine transaminase
B) Aspartate transaminase
C) Alkaline phosphatase
D) Gamma - Glutamyltransferase

- 89) Which of the following are applications of quantum dots?
A) Live imaging
B) Drug delivery
C) As tags for other drug carries
D) All the above
- 90) Nanomembranes have a pore size of _____
A) 1 nm-10 nm
B) 10 nm-100 nm
C) 0.1 nm-1nm
D) 100 nm-1000 nm
- 91) The protective covering over radical during the germination of seeds is
A) Coleoptile
B) Epithelium
C) Suspensor
D) Coleorhiza
- 92) _____ of the following is the characteristic of collenchyma.
A) Elongated cells with thickened corners
B) Isodiametric cells with thickened walls
C) Elongated cells with deposits of cellulose and pectin
D) Isodiametric cells with deposits of cellulose and pectin
- 93) A plant tissue that does not contain lignin is _____
A) Sclerenchyma
B) Parenchyma
C) Collenchyma
D) Chlorenchyma
- 94) Electrons from the excited chlorophyll molecules of PS - II are first accepted by _____
A) Pheophytin
B) Ferredoxin
C) Cytochrome f
D) Cytochrome b
- 95) Kranz anatomy is found in the leaves of _____
A) Wheat
B) Mustard
C) Potato
D) Sugarcane

Rough Work