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**ENT - 41**

**Total No. of Pages : 18**

**P. G. Re-Entrance Examination, 2025**  
**M.Sc. Biochemistry/ Biotechnology/**  
**Medical Information Management**  
**Sub. Code: 58725**

**Day and Date : Thursday, 10-07-2024**

**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 questionpaper.

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
4. Which of the following amino acid is abundantly found in collagen?
- a) Tryptophan    b) Alanine
  - c) Glycine    d) Serine
5. Which of the following is true about the Z-DNA helix?
- a) It has fewer base pairs per turn than B-DNA
  - b) It tends to be found at the 3' end of the genes
  - c) It has alternating GC sequences
  - d) It is a permanent conformation of DNA
6. Which of the following is an example of epimers?
- a) Mannose & Glucose    c) Galactose & Mannose
  - b) Glucose & Ribose    d) Glucose & Galactose
7. Which of the following is not a flavoprotein?
- a) NADH dehydrogenase-Q reductase
  - c) Xanthine oxidase
  - b) Succinate dehydrogenase
  - d) Cytochrome c
8. Whenever the cell's ATP supply is depleted, which of the following enzyme's activity is increased?
- a) Pyruvate kinase    b) Phosphofructokinase-1
  - c) Hexokinase    d) Glucokinase

9. The substances that decreases the activity of enzyme is called as.....
- a) Isoenzymes
  - b) Inhibitors
  - c) Activators
  - d) None of the above
10. ....proposed Lock and Key mechanism for enzyme catalysis.
- a) Louis Pasteur
  - b) Koshland
  - c) Emil Fischer
  - d) Sanger
11. Law of thermodynamics which states that energy can neither be created nor be destroyed is.....
- a) The second law of thermodynamics
  - b) Third law of thermodynamics
  - c) First law of thermodynamics
  - d) Zero-order kinetics
12. Identify the lowest density lipoprotein among the following?
- a) HDL
  - b) LDL
  - c) VLDL
  - d) Chylomicrons
13. Molecules which play the key role in the transfer of genetic information during protein synthesis are.....
- a) DNA
  - b) RNA
  - c) Nucleic acids
  - d) Lipids
14. What is the value of  $\Delta G$ , when a system is at equilibrium?
- a) 0
  - b) 1
  - c) -1
  - d) -2

15. Long-chain fatty acids are oxidized step-wise in one-carbon unit starting from.....
- a) Aliphatic end
  - b) Carboxyl end
  - c) a and b
  - d) None of the above
16. Which of the following membrane lipids have a direct glycosidic linkage between the head-group sugar and the backbone glycerol?
- a) Ether lipids
  - b) Sphingolipids
  - c) Glycolipids
  - d) Phospholipids
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 to differentiate are .....

- a) Ethylene and Auxin
- b) Auxin and cytokinin
- c) Auxin and Absciscic 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



46. Which of the following cells of the immune system do not perform phagocytosis?
- a) Macrophage
  - b) Neutrophil
  - c) Eosinophil
  - d) Basophil
47. Which of the following cells is involved in cell-mediated immunity?
- a) Leukaemia
  - b) T cells
  - c) Mast cells
  - d) Thrombocytes
48. Which of the following protects our body against disease-causing pathogens?
- a) Immune system
  - b) Respiratory system
  - c) Digestive system
  - d) Respiratory system
49. Which of the following is a secondary lymphoid organ?
- a) Bone marrow
  - b) Hypothalamus
  - c) Spleen
  - d) Thymus
50. Which of the following immunity is obtained during a lifetime?
- a) Acquired immunity
  - b) Active immunity
  - c) Passive immunity
  - d) None of the above
51. Which of the following bacteria is predominantly present as normal flora in urine?
- a) Escherichia coli
  - b) Staphylococcus epidermidis
  - c) Staphylococcus aureus
  - d) Streptococcus pyogenes

52. Which of the following statement is incorrect about the important properties of Coronavirus?
- a) Non-Enveloped RNA virus
  - b) Enveloped RNA virus
  - c) Distributed around the world
  - d) Can spread from person to person
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





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

82. Which of the following disorder is an example of point mutation?

- a) Sickle cell anaemia
- b) Down's syndrome
- c) Night blindness
- d) Thalassemia

83. The viral envelope is made up of .....

- a) Proteins
- b) Glycoproteins
- c) Lipids and Proteins
- d) All of the above

84. HTML stands for.....

- a) Hyper text Machine Language
- b) Hyper Text Mark-up Language
- c) Higher text up Mark Language
- d) Hypertext up Mark Language

85. The octal number system has eight base digits including.....

- a) 0 and 8
- b) 0 to 7
- c) 1 to 7
- d) 1 to 8

86. If a frequency distribution is presented by means of adjacent rectangles then it is called.....

- a) histogram
- b) pie diagram
- c) ogive curve
- d) none of these

87. ....among following is a nucleotide sequence database.

- a) Swiss-Port
- b) PubMed
- c) DDBJ
- d) PDB

88. Among following.....is not part of CPU.

- a) Arithmetic Unit
- b) logic Unit
- c) Hard Disk
- d) None of the above

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) 1nm-10nm
- b) 10nm-100nm
- c) 0.1 nm-1nm
- d) 100nm-1000nm

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 |

96. The pressure exerted by the swelling protoplast on the walls of the cell is.....

- |                     |                     |
|---------------------|---------------------|
| a) Wall pressure    | b) Osmotic pressure |
| c) Suction pressure | d) Turgor pressure  |

97. If the endosperm cell of a dicot plant contains 30 chromosomes, find the number of chromosomes present in the root cells of the plant.

- |       |       |
|-------|-------|
| a) 40 | b) 10 |
| c) 20 | d) 15 |

98. The stalk of Datura flower at its base is known as.....

- |            |             |
|------------|-------------|
| a) Corolla | b) Pedicel  |
| c) Sepals  | d) Thalamus |

99. Vessels and Companion cells are characteristics of.....

- |                 |               |
|-----------------|---------------|
| a) Angiosperm   | b) Gymnosperm |
| c) Pteridophyta | d) Fern       |

100. Dominant generation in pteridophytes is.....

- |            |                 |
|------------|-----------------|
| a) Haploid | b) Gametophytic |
| c) Diploid | d) Triploid     |



**Rough**