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ENT - 35

Total No. of Pages : 19

M. Sc. Re - Entrance Examination, 2026
Biochemistry/Biotechnology/Medical Information
Management
Subject Code : 58725

Day and Date : Wednesday, 24-06-2026

Total Marks : 100

Time : 10.30 a.m. to 12.00 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.

01. Which of the following is true about phosphodiester linkage?

- a) 3'-phosphate group of one nucleotide unit is joined to the 5'-hydroxyl group of the next nucleotide
- b) 3'-phosphate group of one nucleotide unit is joined to the 3'-hydroxyl group of the next nucleotide
- c) 5'-phosphate group of one nucleotide unit is joined to the 3'-hydroxyl group of the next nucleotide is joined to the 5'-hydroxyl group of the next nucleotide
- d) 5'-phosphate group of one nucleotide unit

02. Which of the following is the study of energy relationships and conversions in biological systems?

- a) Biochemistry
- b) Biophysics
- c) Biotechnology
- d) Bioenergetics

03. Which of the following is not a step involved in gel filtration?
- a) Gel preparation
 - b) Precipitation
 - c) Sample application
 - d) Elution of the sample
04. The paper chromatography technique based on
- a) adsorption
 - b) partition
 - c) absorption
 - d) size
05. A pair of solution bears the same osmotic pressure. What is this pair of solutions called?
- a) Hypertonic
 - b) Hypotonic
 - c) Isotonic
 - d) Osmolarity
06. Growth of bacteria or microorganisms refer to
- a) changes in the total population
 - b) an increase in number of cells
 - c) an increase in the size of an individual organism
 - d) an increase in the mass of an individual organism
07. 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

08. Which of the following statement(s) is / are always true about the process of cloning?

A. It is possible only in animals.

B. It results in the exact replication of the cell, a living part, or an organism.

C. It results in large number of off-springs.

a) A & B

b) Only B

c) B & C

d) Only A

09. In India, coniferous forests are found in.

a) Himalayas

b) Western ghats

c) Eastern ghats

d) All the above

10. The genotypic ratio of a dihybrid cross is

a) 3:1

b) 1:2:1

c) 12:3:1

d) 9:3:3:1

11. Which of the ribosome subunit NOT present in prokaryotes?

a) 50s

b) 30s

c) 60s

d) None of the above

12. Linking number is always a.

a) Whole number

b) Prime number

c) Integer

d) Even number

13. Following among is a nucleotide sequence database.

a) Swiss-Port

b) PubMed

c) DDBJ

d) PDB

21. What is the concentration of carbon dioxide required for culturing animal cells?
- a) 15-20%
 - b) 25-50%
 - c) 1-10%
 - d) 2-8%
22. Sulphates are reduced to hydrogen sulphide by
- a) Thiobacillus thiooxidans
 - b) Rhodospirillum
 - c) Desulfotomaculum sp.
 - d) Photosynthetic sulfur bacteria
23. Which microorganism(s) among the following perform photosynthesis by utilizing light?
- a) Cyanobacteria, Fungi and Viruses
 - b) Viruses
 - c) Cyanobacteria
 - d) Fungi
24. Which of the following colloidal system represents a gel?
- a) Solid in liquid
 - b) Solid in gas
 - c) Liquid in solid
 - d) Liquid in gas
25. nm is the range of visible light.
- a) 180-400
 - b) 400-800
 - c) 100-180
 - d) 800-1000
26. Based on which of the following enzymes Hydrolysis reactions are catalyzed?
- a) Hydrolase
 - b) Oxidoreductase
 - c) Isomerase
 - d) Ligase

27. Which effects the increased levels of hydrogen ions in the inter-membrane space of the mitochondria?
- a) Decreased levels of chemiosmosis
 - c) Increase ATP production
 - b) Increased levels of water in inter-membrane space
 - d) Decreased levels of oxidative phosphorylation
28. Which of the following is a choline-containing lipid?
- a) Phosphatidylethanolamine
 - b) Phosphatidylserine
 - c) Sphingomyelin
 - d) Phosphatidylglycerol
29. The amino acid sequences of thousands of different proteins from many species have been determined using principles first developed by?
- a) Watson and Crick
 - b) Edman
 - c) Sanger
 - d) Mendel
30. The number of milligrams of KOH required to neutralize the free and combined fatty acid in one gram of a given fat is called.....
- a) Polenske number
 - c) Saponification number
 - b) Acid number
 - d) Iodine number
31. Migration of cancerous cells from the site of origin to other part of the body forming secondary tumors is called
- a) Proliferation
 - b) Diapedesis
 - c) Apoptosis
 - d) Metastasis

32. Which of the following are exclusively gluconogenic?
- | | |
|--------------|-------------|
| a) Lysine | b) Leucine |
| c) Threonine | d) Arginine |
33. Which of the following is an example of RNA-dependent DNA polymerase?
- | | |
|--------------------------|---------------------|
| a) RNA polymerase II | b) DNA ligase |
| c) Reverse transcriptase | d) RNA polymerase I |
34. Which of the following is an example of epimers?
- | | |
|------------------------|------------------------|
| a) Mannose & Glucose | b) Glucose & Ribose |
| c) Galactose & Mannose | d) Glucose & Galactose |
35. In polar molecular solids, the molecules are held together by
- | | |
|-------------------------------|----------------------|
| a) dipole-dipole interactions | b) dispersion forces |
| c) hydrogen bonds | d) covalent bonds |
36. Which of the following solutions cannot conduct electricity?
- | | |
|-------------------------------|------------------|
| a) Sugar in water | b) NaCl in water |
| c) MgCl ₂ in water | d) KCl in water |
37. Haemoglobin is a complex compound of which metal ion?
- | | |
|---------------------|---------------------|
| a) Fe ²⁺ | b) Fe ³⁺ |
| c) Co ²⁺ | d) Co ³⁺ |
38. What is the approximate size of the bacterial cell?
- | |
|--------------------------------------|
| a) 1 mm in diameter |
| b) 0.5 to 1.0 micrometer in diameter |
| c) 2 mm in diameter |
| d) 2 micrometer in diameter |

39. Plasmodium divides by which of the following method most commonly?

- a) Regeneration
- b) Budding
- c) Binary fission
- d) Multiple fission

40. The role of vitamins used in the cell culture media is

- a) Source of energy
- b) Used for promotion of cell survival and growth
- c) Building block of proteins
- d) All of the above

41. 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

42. Which of the following is a genetically modified crop?

- a) Bt-cotton
- b) Bt-brinjal
- c) Golden rice
- d) All of the above

43. Which one of the following is a colonial alga?

- a) Ulothrix
- b) Spirogyra
- c) Volvox
- d) Chlorella

44. Which of the following has non-flagellated isogamous gametes?

- a) Spirogyra
- b) Chlamydomonas
- c) Volvox
- d) Fucus

45. Mucor is a
- a) Parasitic fungus
 - b) Saprophytic fungus
 - c) Facultative saprophytic fungus
 - d) None of the above.
46. Notochord is formed by
- a) Mesodermal cells
 - b) Ectodermal cells
 - c) Epidermal cells
 - d) Endodermal cells
47. The word morphology means
- a) Study of bones
 - b) Study of change
 - c) Study of skin
 - d) Study of structure
48. Which of the following regarding the basic mechanism of gene expression is correct?
- a) DNA — > tRNA — > protein
 - b) DNA — > mRNA — > protein
 - c) RNA — > mRNA — > protein
 - d) DNA — > protein
49. Primosome is the complex of
- a) Helicase + Topoisomerase
 - b) Ligase + Helicase
 - c) Helicase + Primase
 - d) Primase + Ligase
50. Which of the following is not a termination codon?
- a) UGA
 - b) UAC
 - c) UAG
 - d) UAA

51. TELNET program is generally used for the purpose of
- a) Transcription
 - b) Remote communication
 - c) Encryption
 - d) Entertainment
52. Nanomembranes have a pore size of
- a) 1nm-10nm
 - b) 10nm-100nm.
 - c) 0.1 nm-1nm
 - d) 100nm-1000nm
53. Which of the following is a bacterial disease?
- a) Polio
 - b) Tuberculosis
 - c) Influenza
 - d) All of the above
54. A polymeric membrane is vesicular systems in which the drug is confined to a cavity or inner liquid core surrounded by.....
- a) Nano matrices
 - b) Nanoparticles
 - c) Nanocapsules
 - d) Nanowires
55. Name the part of a chromosome where t-loop is found.
- a) Acromere
 - b) Centromere
 - c) Telomere
 - d) Tetraplex
56. The hormone testosterone is produced by
- a) Leydig cells
 - b) Spermatocytes
 - c) Melanocytes
 - d) B-cell of Pancreas
57. The property of not having separate sexes in an organism is called as.....
- a) Hermaphrodite
 - b) Oogamous
 - c) Homogamous
 - d) Heterogamous

58. Which of the following contains chlorophyll a, b, phycoerythrin and phycocyanin?
- a) Chlorophyta
 - b) Phaeophyta
 - c) Rhodophyta
 - d) Bacillariophyta
59. Which of the following is best suited method for production of virus free plants?
- a) Embryo culture
 - b) Meristem culture
 - c) Ovule culture
 - d) Anther culture
60. Ions responsible for cell adhesion, signal transduction and cell proliferation/ differentiation
- a) Na^+
 - b) K^+
 - c) Cl^-
 - d) Ca^{2+}
61. Which part of the compound microscope helps in gathering and focusing light rays on the specimen to be viewed?
- a) Condenser lens
 - b) Magnifying lens
 - c) Objective lens
 - d) Eyepiece lens
62. Which of the following is a colligative property?
- a) Relative lowering of fluid pressure
 - b) Decrease in boiling point
 - c) Decrease in freezing point
 - d) Change in volume after mixing
63. The clarified sugarcane juice contains.....
- a) 20% water
 - b) 60% water
 - c) 85% water
 - d) 0% water

64. Which of the following is not an important precursor of glucose in animals?
- a) Pyruvate
 - b) Glucose 6-phosphate
 - c) Lactate
 - d) Glycerol
65. Which of the following makes water a liquid at room temperature?
- a) Noncovalent interactions
 - b) Hydrogen bonds between water molecules
 - c) Van der Waals forces of attraction
 - d) Covalent bonding
66. Which of the following is a function of chaperone protein?
- a) It provides a template for how proteins should fold
 - b) It degrades proteins that have folded properly
 - c) It degrades proteins that have folded improperly
 - d) It rescues proteins that have folded improperly and allowed them to refold properly
67. Which of the following is true about t_m ?
- a) The higher the content of G \equiv C base pairs, the lower the t_m
 - b) The higher the content of A = T base pairs, the higher the t_m
 - c) It can be termed as renaturation temperature
 - d) The higher the content of G \equiv C base pairs, the higher the t_m
68. Which of the following occurs in meiosis but not in mitosis?
- a) Pairing of homologous chromosomes at metaphase plate
 - b) Separation of sister chromatids at anaphase
 - c) Attachment of spindle fibers to kinetochore
 - d) Replication of DNA prior to start of cell division

69. Which of the following plays a substantial role in linking together sister chromatids immediately after replication?
- a) Topoisomerases
 - b) Histones
 - c) Condensins
 - d) Cohesins
70. 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
71. Which of the following is an imino acid?
- a) Serine
 - b) Alanine
 - c) Glycine
 - d) Proline
72. The phenolphthalein indicator turns in alkaline medium.
- a) yellow
 - b) colorless
 - c) pink
 - d) blue
73. The dielectric constant of water is
- a) 17.3
 - b) 22
 - c) 50
 - d) 78.4
74. Which among the following is a Noble Gas?
- a) Nitrogen
 - b) Hydrogen
 - c) Oxygen
 - d) Helium

81. Vaccination was invented by.....
- a) Watson
 - b) Jenner
 - c) Crick
 - d) Pasteur
82. Properties of stem cells do not include
- a) Potency
 - b) Self-renewal
 - c) Differentiation
 - d) Meiosis
83. Trypan Blue is used for
- a) Cell viability
 - b) Cell imaging
 - c) Cell density counting
 - d) All of the above
84. Totipotency refers to.....
- a) Development of fruits from flowers in a culture
 - b) Development of an organ from a cell in a culture medium
 - c) Flowering in a culture medium
 - d) All of the above
85. The most common solidifying agent used in micropropagation is.....
- a) agar
 - b) dextran
 - c) Mannan
 - d) all of these
86. World's first cloned Buffalo was born in which country?
- a) India
 - b) USA
 - c) Russia
 - d) China

87. The antibiotic resistance genes of a cloning vector are used.
- a) as selectable markers
 - b) to select healthy vectors
 - c) as sequences from where replication starts
 - d) to keep the cultures free from infections
88. Which of the following is not a symptom of Bean Mosaic disease?
- a) Plants are bunchy
 - b) Leaves show mottling
 - c) Mosaic appearance on leaves
 - d) Blackening of leaflets
89. Find the incorrect statement
- a) Agar-agar is produced from Gracilaria
 - b) Chlorella is used in space food
 - c) Mannitol is a food reserve of Rhodophyceae
 - d) Algin is produced by algae
90. In biotechnological studies, the alga that is exploited as a rich source of protein
- a) Spirogyra
 - b) Spirulina
 - c) Chlamydomonas
 - d) Scytonema
91. Find the true statement about bryophytes
- a) they have chloroplasts
 - b) they have archegonia.
 - c) they are thalloid
 - d) all of the above
92. The study of relationships among different organisms is called.....
- a) Taxonomy
 - b) Biology
 - c) Systematics
 - d) Ornithology

93. The property of emitting light from a living organism is called as

- a) Bioluminescence
- b) Phosphorescence
- c) Biophosphorescence
- d) Cytoluminescence

94. The locomotor organ of Echinoderms is called.....

- a) Parapodia
- b) Pseudopodia
- c) Setae
- d) Tube feet

95. 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

96. How is the genetic material expressed?

- a) By replication and transcription
- b) By transcription and translation
- c) By translation and modification
- d) By mutation and transposition

97. The DNA replication is always

- a) Conservative
- b) Random access memory
- c) Non-Conservative
- d) Cache memory

98.is also known as auxiliary memory.

- a) Secondary storage
- b) Semiconservative
- c) Primary storage
- d) Dispersive

99. Among following..... term used to define all input and output devices in a computer system.

- a) Software
- b) Hardware
- c) Shared resources
- d) Monitor

100. Disease of the heart, joints and nervous system are called.....

- a) Degenerative diseases
- b) Communicable diseases
- c) Deficiency diseases
- d) Mental diseases



- Rough Work -