

No. of Pages. 20

Code No.

Y – 3039

Register Number :

Time : 2 Hours

Name :

Max.Marks : 100

**Entrance Examination for Admission to the P.G. Courses in the
Teaching Departments, 2026**

CSS

BIOCHEMISTRY

GENERAL INSTRUCTIONS

1. The Question Paper is having 100 Objective Questions, each carrying one mark.
2. The answers are to be marked **only** in the “**OMR Sheet**” provided.
3. **Negative marking** : **0.25 marks** will be deducted for each wrong answer .

INSTRUCTIONS FOR FILLING THE OMR SHEET

- The OMR sheet should not be folded or crushed.
- Use only blue/black ball point pen to fill the circles.
- Use of pencil is strictly prohibited.
- Circles should be darkened completely and properly.
- Cutting and erasing on this sheet is not allowed.
- Do not leave any stray marks on the sheet.
- Do not use marker or white fluid to hide the mark.
- **WRONG METHODS**



CORRECT METHOD



DO NOT WRITE HERE

Choose appropriate answer from the options in the questions.

(100 × 1 = 100 marks)

1. The pH of a buffer is determined by the equation
 - A. Gibbs – Donnan
 - B. Henderson Joules
 - C. Henderson Hasselbalch
 - D. Henderson Smith

2. Vant Hoff's law is concerned with
 - A. Strong electrolytes
 - B. Ionic solutions
 - C. Osmotic pressure
 - D. Weak electrolytes

3. All the following lipids are present in cell membrane except
- A. Lecithin
 - B. Cholesterol
 - C. Sphingomyelin
 - D. Triacylglycerol
4. Which is the ketogenic amino acid?
- A. Alanine
 - B. Glutamic acid
 - C. Leucine
 - D. Aspartic acid
5. All the following are essential amino acids except
- A. Tyrosine
 - B. Lysine
 - C. Valine
 - D. Phenylalanine
6. The force maintaining the primary structure of a protein
- A. Peptide bonds
 - B. Hydrophobic forces
 - C. Hydrogen bonds
 - D. Electrostatic bonds
7. An example of lyase is
- A. Glutamine synthetase
 - B. Fumerase
 - C. Choline esterase
 - D. Amylase
8. In enzyme kinetics V_{max} denotes
- A. The amount of an active enzyme
 - B. Substrate concentration
 - C. Half the substrate concentration
 - D. Quantity of enzyme substrate complex

37. Serum alkaline phosphatase is increased in
- A. Hypothyroidism
 - B. Carcinoma of prostate
 - C. Bone diseases
 - D. Myocardial infarction
38. The normal fasting plasma glucose level is
- A. 40 – 60 mg/100 ml
 - B. 70 – 110 mg/100 ml
 - C. 120 – 150 mg/100 ml
 - D. 160 – 180 mg/100 ml
39. Deficiency of vitamin D leads to
- A. Night blindness
 - B. Microcytic anemia
 - C. Rickets
 - D. Macrocytic anemia
40. Fatty liver may be prevented by the following except
- A. Ethanol
 - B. Choline
 - C. Methionine
 - D. Lecithin
41. Transamination of aspartic acid gives rise to
- A. Asparagine
 - B. Malate
 - C. Oxalosuccinate
 - D. Oxaloacetate
42. Which of the following is a simple protein?
- A. Casein
 - B. Insulin
 - C. Hemoglobin
 - D. Tyrosinase
43. The beneficial effects of dietary fiber include all the following except
- A. Increased motility of intestine
 - B. Helping in the digestion process
 - C. Decreased absorption of cholesterol
 - D. Increased glucose tolerance

44. Normal blood cholesterol level is
- A. 40 – 60 mg/100 ml B. 70 – 110 mg/100 ml
C. 120 – 150 mg/100 ml D. 150 – 200 mg/100 ml
45. All are useful substances produced from cholesterol except
- A. Vitamin D B. Bile salts
C. Bile pigments D. Cortisol
46. Which intermediate of TCA cycle is an unsaturated dicarboxylic acid
- A. Succinate B. Malate
C. Oxaloacetate D. Fumarate
47. Which is a non reducing sugar
- A. Maltose B. Sucrose
C. Lactose D. Isomaltose
48. Sphingomyelin on hydrolysis yields all the following except
- A. Sphingosine B. Glucose
C. Phosphate D. Choline
49. Proteins may be estimated by the following methods except
- A. Biuret method B. Heat coagulation
C. Kjeldahl's method D. Nephelometry
50. In competitive enzyme inhibition
- A. Inhibitor has structural similarity substrate
B. K_m is decreased
C. V_{max} is decreased
D. Reaction rate is independent of substrate concentration

51. Normal value of blood urea is
- A. 3 – 4 mg/100 ml B. 4 – 8 mg/100 ml
C. 8 – 16 mg/100 ml D. 20 – 40 mg/100 ml
52. Tertiary structure of protein does not contain
- A. Disulphide bonds B. Salt linkage
C. Vander waal's bonds D. Hydrogen bonds
53. During glycolysis ATP and the coenzyme Mg^{2+} helps the enzyme activity of
- A. Enolase B. Pyruvic kinase
C. Phosphohexose isomerase D. Glucokinase
54. The link between glycolysis and Kerb's cycle is
- A. Pyruvic acid B. Malic acid
C. Acetyl CoA D. Oxaloacetic acid
55. The first stable product of dark reaction of photosynthesis is
- A. Ribulase diphosphate B. 6 carbon addition compound
C. 3 - phosphoglyceric acid D. Fructose - 6 - phosphate
56. How many molecules of oxygen are used during the glycolysis of one glucose molecule?
- A. Zero B. One
C. Sixteen D. Thirty eight
57. In a plant cell, the light reactions of photosynthesis takes place in the
- A. Cytosol B. Endoplasmic reticulam
C. Chloroplasts D. Leucoplasts

58. The molecule in the calvin cycle that combines with carbondioxide is
- A. Glyceraldehyde phosphate
 - B. Ribulose biphosphate
 - C. Phosphoenol pyruvic acid
 - D. Citric acid
59. In DNA replication the helix is unwound by which type of enzyme
- A. Topoisomerase
 - B. Primase
 - C. DNA polymerase
 - D. Helicase
60. The signal to start translation is the initiation codon usually AUG, the codon for
- A. Tyrosine
 - B. Methionine
 - C. Leucine
 - D. No aminoacid
61. The kind of the protein which a cell has to manufacture is determined by
- A. mRNA
 - B. tRNA
 - C. rRNA
 - D. DNA
62. Genetic code is said to be degenerate because
- A. One aminoacid is coded by more than one codon
 - B. Codon degenerates very quickly
 - C. One codon codes for more than one amino acid
 - D. Both (A) and (B)
63. Which of the following aminoacids have one codon?
- A. Valine
 - B. Isoleucine
 - C. Tryptophan
 - D. Tyrosine
64. Inactive zymogens are precursors of all the following gastrointestinal enzymes except
- A. Trypsin
 - B. Chymotrypsin
 - C. Pepsin
 - D. Ribonuclease

65. Enzymes with different molecular configurations but with same function are called
- A. Isoenzymes
 - B. Apoenzymes
 - C. Co-enzymes
 - D. Inducible enzymes
66. Hypothyroidism is characteristically associated with high serum concentration of
- A. Glucose
 - B. Phosphate
 - C. Calcium
 - D. Cholesterol
67. Ca^{2+} facilitates the action of lipase
- A. By emulsification
 - B. By inhibiting emulsification
 - C. By soap formation
 - D. By formation of micelle
68. β -Oxidation of odd carbon fatty acid chain produces
- A. succinyl CoA
 - B. Propionyl CoA
 - C. Acetyl CoA
 - D. Malonyl CoA
69. Pancreatic juice contains all the following except
- A. Trypsinogen
 - B. Lipase
 - C. Cholecystokinin
 - D. Chymotrypsinogen
70. Transferrin is a type of
- A. Albumin
 - B. α -Globulin
 - C. β -Globulin
 - D. A lipoprotein complex

71. Biotin is involved in which of the following types of reactions

- A. Deaminations
- B. Hydroxylations
- C. Oxidation
- D. Carboxylation

72. Which is a eukaryote?

- A. Mycoplasma
- B. Bacteria
- C. Fungus
- D. Chlamydia

73. The first human disease proved to have a viral cause was

- A. Small pox
- B. Rabies
- C. Hepatitis
- D. Yellow fever

74. The usual concentration of agar used for agar medium is

- A. 2%
- B. 5%
- C. 10%
- D. 20%

75. Tyndallisation is

- A. Intermittent sterilization
- B. Pasteurization
- C. Boiling
- D. Autoclaving

76. Plasmids are responsible for

- A. Cell metabolism
- B. Cell division
- C. Cell respiration
- D. Gene transfer

77. Cold sterilization means
- A. Sterilization under low temperature
 - B. Sterilization by ice
 - C. Sterilization by gamma rays
 - D. Sterilization by sonic vibrations
78. The bond that binds light chain and heavy chain in an immunoglobulin is
- A. Hydrogen bond
 - B. Hydroxyl bond
 - C. Disulphide bond
 - D. Vander waals forces
79. The reaction of soluble antigen with antibody is known as
- A. Agglutination
 - B. Precipitation
 - C. Flocculation
 - D. Complement fixation
80. The widal test is a type of
- A. Precipitation reaction
 - B. Agglutination test
 - C. Complement fixation test
 - D. Immunofluorescence
81. Monoclonal antibodies are used in
- A. Immunotherapy
 - B. Immunological identification of cells and tissues
 - C. Radio immuno imaging
 - D. All of the above

82. Primary immune response is mediated by
- A. IgA
 - B. IgD
 - C. IgG
 - D. IgM
83. What is the purpose of the Basic Local Alignment Search Tool (BLAST) in bioinformatics?
- A. Protein structure prediction
 - B. Sequence similarity search
 - C. Gene editing
 - D. RNA interference
84. Which bioinformatics technique is used for identifying conserved domains in proteins?
- A. Protein docking
 - B. Motif searching
 - C. DNA sequencing
 - D. RNA interference
85. What is the role of gene expression profiling in bioinformatics?
- A. Studying weather patterns
 - B. Analyzing gene expression levels
 - C. Cloning genes
 - D. Predicting protein structures

86. Which bioinformatics technique predicts the three dimensional structure of proteins?
- A. Homology modelling
 - B. Polymerase chain reaction
 - C. Phylogenetic analysis
 - D. Sequence alignment
87. Serum differs from blood as it lacks
- A. Antibodies
 - B. Clotting factors
 - C. Albumins
 - D. Globulins
88. Globulins of the blood plasma are responsible for
- A. Defence mechanisms
 - B. Blood clotting
 - C. Oxygen transport
 - D. Osmotic balance
89. Lymph differs from blood in having
- A. No plasma
 - B. More RBCS and less WBCS
 - C. More WBCS and no RBCS
 - D. Plasma without proteins
90. Which ion is essential in muscle contraction?
- A. Cl
 - B. Ca
 - C. K
 - D. Na

91. Muscles are attached to bones by
- A. Ligaments
 - B. Cartilage
 - C. Tendons
 - D. Joints
92. In SDS PAGE proteins are separated on the basis of their _____.
- A. Charge
 - B. Size or molecular weight
 - C. Solubility
 - D. Shape
93. Chromatography is used for the separation of
- A. Only volatile compounds
 - B. Large non-volatile molecules
 - C. Complex mixtures of biomolecules
 - D. None of the above
94. Which method is most suitable for detecting the presence of a specific protein in a mixture?
- A. Western blotting
 - B. Northern blotting
 - C. Southern blotting
 - D. NMR spectroscopy
95. Which technique is used to amplify small amounts of DNA?
- A. Polymerase chain reaction
 - B. Gel electrophoresis
 - C. Cloning
 - D. Sequencing

96. What is the primary purpose of creating “Golden rice”?
- A. To make it resistant to pests
 - B. To increase the amount of iron
 - C. To increase the vitamin A content
 - D. To make it herbicide resistant
97. Gene therapy in human was first practiced by Blease and Andersco to cure
- A. Cystic fibrosis
 - B. Hemophilia
 - C. Thalassemia
 - D. Severe Combined Immunodeficiency Disease (SCID)
98. Which of the following is an example of xenobiotic?
- A. Glucose
 - B. Albumin
 - C. Acetoaminophen
 - D. Hemoglobin
99. What type of reaction is the conversion of benzene to phenol?
- A. Reduction
 - B. Hydrolysis
 - C. Oxidation
 - D. Acetylation
100. Which pigment act as the reaction center in photosynthesis?
- A. Carotene
 - B. Cytochrome
 - C. P 700 or P 680 (Chlorophylla)
 - D. Xanthophyll
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ROUGH WORK

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