

Roll No.

Question Booklet Number

O. M. R. Serial No.

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M. Sc. (Biochemistry) (Second Semester) (NEP)

EXAMINATION, 2022-23

CLINICAL BIOCHEMISTRY

Paper Code							
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Questions Booklet Series
A

Time : 1:30 Hours]

[Maximum Marks : 75

Instructions to the Examinee :

1. Do not open the booklet unless you are asked to do so.
2. The booklet contains 100 questions. Examinee is required to answer 75 questions in the OMR Answer-Sheet provided and not in the question booklet. All questions carry equal marks.
3. Examine the Booklet and the OMR Answer-Sheet very carefully before you proceed. Faulty question booklet due to missing or duplicate pages/questions or having any other discrepancy should be got immediately replaced.

परीक्षार्थियों के लिए निर्देश :

1. प्रश्न-पुस्तिका को तब तक न खोलें जब तक आपसे कहा न जाए।
2. प्रश्न-पुस्तिका में 100 प्रश्न हैं। परीक्षार्थी को 75 प्रश्नों को केवल दी गई OMR आन्सर-शीट पर ही हल करना है, प्रश्न-पुस्तिका पर नहीं। सभी प्रश्नों के अंक समान हैं।
3. प्रश्नों के उत्तर अंकित करने से पूर्व प्रश्न-पुस्तिका तथा OMR आन्सर-शीट को सावधानीपूर्वक देख लें। दोषपूर्ण प्रश्न-पुस्तिका जिसमें कुछ भाग छपने से छूट गए हों या प्रश्न एक से अधिक बार छप गए हों या उसमें किसी अन्य प्रकार की कमी हो, तो उसे तुरन्त बदल लें।

(Remaining instructions on the last page)

(शेष निर्देश अन्तिम पृष्ठ पर)

(Only for Rough Work)

1. Which of the following statements about buffer systems is correct ?
 - (A) Buffer systems help maintain a constant pH in biological systems.
 - (B) Buffer systems only consist of a weak acid.
 - (C) Buffer systems cannot function in both acidic and alkaline conditions.
 - (D) Buffer systems are not important for cellular homeostasis.

2. Which of the following statements regarding buffer systems in physiology is accurate ?
 - (A) Buffer systems primarily regulate blood glucose levels.
 - (B) Buffer systems maintain the body's water balance.
 - (C) Buffer systems are responsible for the synthesis of neurotransmitters.
 - (D) Buffer systems help maintain the pH stability of body fluids.

3. Which of the following statements accurately describes metabolic acidosis ?
 - (A) Metabolic acidosis is characterized by a decrease in blood pH and an increase in bicarbonate levels.
 - (B) Metabolic acidosis results from excessive loss of carbon dioxide from the body.
 - (C) Metabolic acidosis is commonly caused by excessive intake of alkaline substances.
 - (D) Metabolic acidosis leads to an increase in blood pH and a decrease in bicarbonate levels.

4. Which of the following statements accurately describes metabolic alkalosis ?
 - (A) Metabolic alkalosis is characterized by a decrease in blood pH and a decrease in bicarbonate levels.
 - (B) Metabolic alkalosis results from excessive accumulation of carbon dioxide in the body.
 - (C) Metabolic alkalosis is commonly caused by excessive loss of acid from the body.
 - (D) Metabolic alkalosis leads to an increase in blood pH and an increase in bicarbonate levels.

5. Which of the following statements accurately describes the structure and properties of water ?
- (A) Water is a linear molecule with a linear arrangement of atoms.
 - (B) Water molecules are held together by covalent bonds.
 - (C) Water exhibits high surface tension due to its low cohesion properties.
 - (D) Water has a high specific heat capacity, making it resistant to temperature change
6. The Henderson-Hasselbalch equation is used to calculate :
- (A) The pH of a buffer solution.
 - (B) The concentration of a weak acid in a solution.
 - (C) The molar mass of a solute in a solution.
 - (D) The rate of a chemical reaction in a solution.
7. The Henderson-Hasselbalch equation relates which two components of a solution ?
- (A) pH and pka.
 - (B) pH and concentration of the solute.
 - (C) Concentration of the solute and pka.
 - (D) pKa and molar mass of the solute.
8. Which of the following statements accurately describes bioenergetics ?
- (A) Bioenergetics is the study of the flow and transformation of energy in living systems.
 - (B) Bioenergetics is the study of the structure and function of biological macromolecules.
 - (C) Bioenergetics focuses on the transmission of nerve impulses in the body.
 - (D) Bioenergetics primarily deals with the process of DNA replication and gene expression.

9. The standard free energy change (ΔG°) of a chemical reaction is a measure of :
- (A) The total energy released or absorbed during the reaction.
 - (B) The rate at which the reaction occurs.
 - (C) The equilibrium constant of the reaction.
 - (D) The activation energy required for the reaction to proceed.
10. Which of the following statements accurately describes entropy ?
- (A) Entropy is a measure of the disorder or randomness in a system.
 - (B) Entropy always increases in an isolated system.
 - (C) Entropy is a measure of the heat content of a system.
 - (D) Entropy is inversely proportional to temperature.
11. Which of the following accurately describes oxidative phosphorylation ?
- (A) Oxidative phosphorylation occurs in the cytoplasm of the cell.
 - (B) Oxidative phosphorylation involves the transfer of high-energy phosphate groups to ADP to form ATP.
 - (C) Oxidative phosphorylation is an anaerobic process that does not require oxygen.
 - (D) Oxidative phosphorylation takes place in the mitochondria and requires oxygen as the final electron acceptor.
12. Which of the following statements accurately describes the electron transport chain ?
- (A) The electron transport chain occurs in the cytoplasm of the cell.
 - (B) The electron transport chain is an anaerobic process that does not require oxygen.
 - (C) The electron transport chain involves the transfer of electrons and generation of ATP.
 - (D) The electron transport chain takes place in the nucleus of the cell.

13. Which of the following molecules is NOT a component of the electron transport chain ?
- (A) NADH
 - (B) FADH₂
 - (C) ATP
 - (D) Cytochrome c
14. The primary function of the electron transport chain is to :
- (A) Generate ATP through oxidative phosphorylation.
 - (B) Convert NADH to FADH₂.
 - (C) Transfer electrons from cytosol to mitochondria.
 - (D) Facilitate glycolysis in the cytoplasm.
15. Which of the following statements accurately describes amino acids ?
- (A) Amino acids are the building blocks of lipids.
 - (B) Amino acids contain a carboxyl group (– COOH) and an amino group (– NH₂).
 - (C) Amino acids are only found in animal sources and not in plant sources.
 - (D) Amino acids are primarily involved in energy storage within cells.
16. How many essential amino acids are required for human nutrition ?
- (A) 5
 - (B) 10
 - (C) 15
 - (D) 20
17. Which of the following amino acids is classified as a basic amino acid ?
- (A) Alanine
 - (B) Cysteine
 - (C) Lysine
 - (D) Proline
18. Which of the following amino acids is classified as an acidic amino acid ?
- (A) Asparagine
 - (B) Leucine
 - (C) Glutamic acid
 - (D) Tyrosine
19. Which of the following amino acids is classified as an aromatic amino acid ?
- (A) Glycine
 - (B) Serine
 - (C) Phenylalanine
 - (D) Arginine

20. Which of the following components is NOT a part of the electron transport chain ?
- (A) NADH dehydrogenase (Complex I)
 - (B) Cytochrome c
 - (C) ATP synthase (Complex V)
 - (D) Acetyl-CoA synthase
21. Which of the following statements accurately describes uncouplers of the electron transport chain ?
- (A) Uncouplers enhance the efficiency of ATP production by promoting electron flow.
 - (B) Uncouplers inhibit the transfer of electrons in the electron transport chain.
 - (C) Uncouplers allow protons to flow back into the mitochondrial matrix without ATP synthesis.
 - (D) Uncouplers reduce the production of reactive oxygen species (ROS) during electron transport.
22. Which of the following statements accurately describes inhibitors of the electron transport chain ?
- (A) Inhibitors enhance the flow of electrons in the electron transport chain.
 - (B) Inhibitors promote ATP synthesis during oxidative phosphorylation.
 - (C) Inhibitors block the transfer of electrons in specific complexes of the electron transport chain.
 - (D) Inhibitors increase the production of reactive oxygen species (ROS) during electron transport.
23. Which of the following statements accurately describes anticoagulants ?
- (A) Anticoagulants promote blood clotting and prevent excessive bleeding.
 - (B) Anticoagulants are used to dissolve blood clots that have already formed.
 - (C) Anticoagulants inhibit the formation of blood clots and prevent their extension.
 - (D) Anticoagulants are only used in surgical procedures and not for medical conditions.

24. Which of the following substances is commonly used as a preservative in urine specimens for laboratory testing ?
- (A) Sodium chloride (NaCl)
 - (B) Glucose
 - (C) Ethanol
 - (D) Boric acid
25. Which of the following plasma proteins is involved in blood clotting ?
- (A) Albumin
 - (B) Hemoglobin
 - (C) Fibrinogen
 - (D) Globulin
26. Which of the following cellular components is responsible for oxygen transport in the blood ?
- (A) Red blood cells (erythrocytes)
 - (B) White blood cells (leukocytes)
 - (C) Platelets (thrombocytes)
 - (D) Neurons
27. Which of the following proteins is the most abundant in human plasma ?
- (A) Albumin
 - (B) Fibrinogen
 - (C) Immunoglobulins (antibodies)
 - (D) Hemoglobin
28. Which enzyme is responsible for the breakdown of complex carbohydrates into smaller sugar units in the mouth and small intestine ?
- (A) Amylase
 - (B) Pepsin
 - (C) Trypsin
 - (D) Lipase
29. Anemia is a condition characterized by a deficiency in which component of the blood, and it can be classified into different types based on which factor ?
- (A) Red blood cells (erythrocytes); size and shape
 - (B) White blood cells (leukocytes); number and function
 - (C) Platelets (thrombocytes); clotting ability
 - (D) Plasma proteins; concentration and distribution

30. Holoenzyme is made of :
- (A) Apoenzyme and Zymogen
 - (B) Apoenzyme and Co-enzyme
 - (C) Co-enzyme and Prosthetic group
 - (D) Prosthetic group and Co-factor
31. Megaloblastic anemia is characterized by a deficiency in which vitamin, resulting in abnormal production of which type of blood cells ?
- (A) Vitamin B₁₂; red blood cells (erythrocytes)
 - (B) Vitamin C; white blood cells (leukocytes)
 - (C) Vitamin K; platelets (thrombocytes)
 - (D) Vitamin D; plasma proteins
32. Sickle cell anemia is a genetic disorder characterized by the production of abnormal hemoglobin. Which specific mutation causes the abnormality in hemoglobin structure in sickle cell anemia ?
- (A) Substitution of valine for glutamic acid in the β -globin chain
 - (B) Deletion of a codon in the α -globin chain
 - (C) Insertion of an extra amino acid in the γ -globin chain
 - (D) Deletion of the β -globin chain entirely
33. Pernicious anemia is a type of anemia caused by the impaired absorption of which essential nutrient ?
- (A) Iron
 - (B) Vitamin B₁₂
 - (C) Folic acid
 - (D) Vitamin D
34. Anemia results in adequate supply of which essential mineral in the body ?
- (A) Calcium
 - (B) Sodium
 - (C) Iron
 - (D) Potassium
35. In iron deficiency, which cellular mechanism is primarily affected, leading to reduced production of hemoglobin ?
- (A) Impaired absorption of iron from the gastrointestinal tract
 - (B) Decreased iron storage in ferritin within cells
 - (C) Inadequate release of iron from macrophages
 - (D) Altered function of the transferrin receptor in erythroblasts

36. Iron deficiency, which cellular mechanism is primarily affected, leading to reduced synthesis of heme and impaired oxygen-carrying capacity ?
- (A) Impaired uptake of iron by transferrin receptors on erythroblasts
 - (B) Inadequate iron release from ferritin within cells
 - (C) Decreased activity of iron-regulatory proteins (IRPs)
 - (D) Altered function of iron-sulfur cluster biogenesis enzymes
37. Hemolytic anemia is a condition characterized by the premature destruction of which type of blood cells ?
- (A) Red blood cells (erythrocytes)
 - (B) White blood cells (leukocytes)
 - (C) Platelets (thrombocytes)
 - (D) Plasma proteins
38. Thalassemia is primarily caused by :
- (A) Inadequate dietary intake of iron
 - (B) Abnormal production of hemoglobin chains
 - (C) Autoimmune destruction of red blood cells
 - (D) Deficiency in vitamin B₁₂ absorption
39. Which population group is most commonly affected by thalassemia ?
- (A) Children aged 5-10 years
 - (B) Adults over the age of 60
 - (C) Individuals of Mediterranean, Southeast Asian, or African descent
 - (D) Pregnant women
40. The main characteristic feature of thalassemia is :
- (A) Increased production of red blood cells
 - (B) Enlarged spleen
 - (C) Impaired clotting ability
 - (D) Abnormal hemoglobin production
41. How is thalassemia diagnosed ?
- (A) Genetic testing and blood tests
 - (B) X-ray imaging of the bone marrow
 - (C) Electrocardiogram (ECG)
 - (D) Urinalysis
42. What is the primary cause of hemophilia ?
- (A) Excessive consumption of blood-thinning medications
 - (B) Autoimmune response attacking clotting factors
 - (C) Deficiency or dysfunction of specific clotting factors
 - (D) Impaired platelet production

43. Hemophilia is primarily inherited in an X-linked :
- (A) Dominant pattern
 - (B) Recessive pattern
 - (C) Autosomal pattern
 - (D) Y-linked pattern
44. Which specific clotting factor deficiency is associated with hemophilia A ?
- (A) Factor VII
 - (B) Factor VIII
 - (C) Factor IX
 - (D) Factor XIII
45. How does the deficiency or dysfunction of clotting factors lead to the characteristic bleeding disorder in hemophilia ?
- (A) Impaired platelet aggregation
 - (B) Reduced production of red blood cells
 - (C) Delayed blood coagulation
 - (D) Abnormal vascular wall function
46. Liver function tests (LFTs) are a group of blood tests that measure various markers to assess the function of which organ ?
- (A) Kidneys
 - (B) Pancreas
 - (C) Liver
 - (D) Heart
47. Which of the following markers is commonly measured in liver function tests to assess liver cell damage ?
- (A) Alanine aminotransferase (ALT)
 - (B) Amylase
 - (C) Creatinine
 - (D) Thyroid-stimulating hormone (TSH)
48. Which liver function test marker is an indicator of obstructed bile flow ?
- (A) Aspartate aminotransferase (AST)
 - (B) Gamma-glutamyl transferase (GGT)
 - (C) Bilirubin
 - (D) Alkaline phosphatase (ALP)
49. Which liver function test marker is associated with the synthesis and clearance of albumin ?
- (A) Total protein
 - (B) Prothrombin time (PT)
 - (C) International normalized ratio (INR)
 - (D) Albumin

50. Elevated levels of which liver function test marker are commonly observed in cases of alcoholic liver disease ?
- (A) Total bilirubin
 - (B) Alkaline phosphatase (ALP)
 - (C) Aspartate aminotransferase (AST)
 - (D) Gamma-glutamyl transferase (GGT)
51. Bilirubin is a yellow pigment that is produced as a byproduct of the breakdown of which component in the body ?
- (A) Red blood cells
 - (B) White blood cells
 - (C) Platelets
 - (D) Hemoglobin
52. Bilirubin is initially formed in which specific organ ?
- (A) Liver
 - (B) Spleen
 - (C) Kidneys
 - (D) Pancreas
53. The conversion of bilirubin into a water-soluble form occurs in which organ or organ system ?
- (A) Liver
 - (B) Kidneys
 - (C) Lungs
 - (D) Intestines
54. What is the name of the water-soluble form of bilirubin that is excreted in bile ?
- (A) Unconjugated bilirubin
 - (B) Conjugated bilirubin
 - (C) Direct bilirubin
 - (D) Indirect bilirubin
55. In which organ is conjugated bilirubin further modified and converted into urobilinogen ?
- (A) Liver
 - (B) Spleen
 - (C) Pancreas
 - (D) Small intestine
56. Jaundice is characterized by a yellowish discoloration of the skin and eyes due to an excess buildup of which pigment in the body ?
- (A) Hemoglobin
 - (B) Bilirubin
 - (C) Melanin
 - (D) Chlorophyll

57. Which organ is primarily responsible for the breakdown and elimination of bilirubin from the body ?
- (A) Liver
 - (B) Kidneys
 - (C) Spleen
 - (D) Pancreas
58. Elevated levels of bilirubin in the bloodstream can be caused by which of the following conditions ?
- (A) Excessive red blood cell destruction
 - (B) Liver dysfunction or disease
 - (C) Bile duct obstruction
 - (D) All of the above
59. Which type of jaundice is characterized by the excessive breakdown of red blood cells, leading to increased bilirubin production ?
- (A) Hemolytic jaundice
 - (B) Hepatocellular jaundice
 - (C) Obstructive jaundice
 - (D) Physiological jaundice
60. What is the term used to describe the yellowing of the skin and eyes seen in newborns due to the immaturity of their liver function ?
- (A) Neonatal hepatitis
 - (B) Neonatal cholestasis
 - (C) Physiological jaundice
 - (D) Biliary atresia
61. Glycosuria and ketonuria are characteristic of :
- (A) Addison disease
 - (B) Crohn's disease
 - (C) Conn's disease
 - (D) Diabetes Mellitus
62. A student is nervous for a big exam and is breathing rapidly, what do you expect out of the followings ?
- (A) Metabolic Acidosis
 - (B) Metabolic Alkalosis
 - (C) Respiratory Acidosis
 - (D) Respiratory Alkalosis
63. Which of the following condition causes metabolic alkalosis ?
- (A) Uncontrolled diabetes mellitus
 - (B) Starvation
 - (C) Excess alcohol
 - (D) Excess aldosterone

64. Kidney-shaped nucleus occurs in :
- (A) Neutrophils
 - (B) Monocytes
 - (C) Lymphocytes
 - (D) Eosinophils
65. Which liver function test marker is used to evaluate liver damage due to alcohol consumption ?
- (A) Alanine aminotransferase (ALT)
 - (B) Aspartate aminotransferase (AST)
 - (C) Alkaline phosphatase (ALP)
 - (D) Gamma-glutamyl transferase (GGT)
66. Enzyme kinetics is the study of :
- (A) Enzyme structure
 - (B) Enzyme function
 - (C) Enzyme regulation
 - (D) Enzyme classification
67. The Michaelis-Menten equation describes the relationship between :
- (A) Enzyme concentration and substrate concentration
 - (B) Enzyme activity and temperature
 - (C) Enzyme structure and pH
 - (D) Enzyme regulation and feedback inhibition
68. The maximum rate of an enzymatic reaction is known as :
- (A) V_{\max}
 - (B) K_m
 - (C) K_{cat}
 - (D) K_{cat}/K_m
69. The K_m value in enzyme kinetics represents :
- (A) The substrate concentration at half-maximal velocity
 - (B) The maximum velocity of the reaction
 - (C) The enzyme concentration in the reaction
 - (D) The rate constant of the reaction
70. Competitive, non-competitive, and uncompetitive are examples of :
- (A) Enzyme cofactors
 - (B) Enzyme inhibitors
 - (C) Enzyme activators
 - (D) Enzyme substrates

71. Enzymes are classified into different classes based on their :
- (A) Substrate specificity
 - (B) Reaction mechanism
 - (C) Molecular weight
 - (D) All of the above
72. Enzymes that catalyze the transfer of a functional group from one molecule to another are classified as :
- (A) Oxidoreductases
 - (B) Transferases
 - (C) Hydrolases
 - (D) Lyases
73. Enzymes that catalyze the addition or removal of water in a reaction are classified as :
- (A) Oxidoreductases
 - (B) Transferases
 - (C) Hydrolases
 - (D) Isomerases
74. Enzymes that catalyze the rearrangement of atoms within a molecule are classified as :
- (A) Oxidoreductases
 - (B) Transferases
 - (C) Isomerases
 - (D) Ligases
75. Which of the following is not a commonly used kidney function test ?
- (A) Blood urea nitrogen (BUN)
 - (B) Serum creatinine
 - (C) Glomerular filtration rate (GFR)
 - (D) C-reactive protein (CRP)
76. Glomerular filtration rate (GFR) is a measure of :
- (A) Kidney blood flow
 - (B) Urine concentration
 - (C) Kidney size
 - (D) Kidney function
77. A high level of creatinine in the blood is typically associated with :
- (A) Decreased kidney function
 - (B) Increased kidney function
 - (C) Liver dysfunction
 - (D) Elevated blood glucose levels

78. Which of the following is a recognized biomarker for diagnosing and monitoring pancreatitis ?
- (A) Amylase
 - (B) Lipase
 - (C) CA 19-9
 - (D) C-reactive protein (CRP)
79. Which of the following conditions is associated with the hyosecretion of hormones ?
- (A) Hypothyroidism
 - (B) Cushing's syndrome
 - (C) Acromegaly
 - (D) Hyperthyroidism
80. Which of the following endocrine disorders is characterized by the hyosecretion of cortisol ?
- (A) Addison's disease
 - (B) Grave's disease
 - (C) Polycystic ovary syndrome (PCOS)
 - (D) Diabetes insipidus
81. Hyosecretion of which hormone leads to growth retardation and developmental delays in children ?
- (A) Insulin
 - (B) Thyroxine
 - (C) Growth hormone
 - (D) Parathyroid hormone
82. Which gland is primarily responsible for the hyosecretion of insulin, leading to diabetes mellitus ?
- (A) Thyroid gland
 - (B) Adrenal gland
 - (C) Pancreas
 - (D) Pituitary gland
83. Which of the following conditions is caused by the hyosecretion of the antidiuretic hormone (ADH) ?
- (A) Gigantism
 - (B) Diabetes insipidus
 - (C) Cushing's syndrome
 - (D) Hypothyroidism
84. Excessive production of which hormone is associated with the condition known as Cushing's syndrome ?
- (A) Thyroid-stimulating hormone (TSH)
 - (B) Cortisol
 - (C) Insulin
 - (D) Growth hormone
85. Hypersecretion of which hormone leads to the development of gigantism in children and acromegaly in adults ?
- (A) Estrogen
 - (B) Prolactin
 - (C) Adrenocorticotrophic hormone (ACTH)
 - (D) Growth hormone

86. Which gland is primarily responsible for the hypersecretion of thyroxine, resulting in the condition called hyperthyroidism ?
- (A) Thyroid gland
(B) Parathyroid gland
(C) Adrenal gland
(D) Pituitary gland
87. Hypersecretion of which hormone leads to the condition known as hyperparathyroidism, characterized by elevated levels of calcium in the blood ?
- (A) Parathyroid hormone
(B) Insulin
(C) Thyroxine
(D) Adrenocorticotrophic hormone (ACTH)
88. Which of the following is a characteristic feature of type 1 diabetes mellitus ?
- (A) Insulin resistance
(B) Autoimmune destruction of pancreatic beta cells
(C) Excessive production of insulin
(D) Obesity as the primary cause
89. Which of the following is a hallmark symptom of diabetes mellitus ?
- (A) Hypoglycemia
(B) Polyuria (excessive urination)
(C) Bradycardia (slow heart rate)
(D) Hypertension (high blood pressure)
90. Which hormone is primarily responsible for regulating blood sugar levels in the body ?
- (A) Insulin
(B) Glucagon
(C) Thyroxine
(D) Estrogen
91. Which type of diabetes mellitus is characterized by insulin resistance and relative insulin deficiency ?
- (A) Type 1 diabetes
(B) Gestational diabetes
(C) Type 2 diabetes
(D) LADA (latent autoimmune diabetes in adults)
92. Phenylketonuria is an inherited metabolic disorder caused by a deficiency of an enzyme involved in the metabolism of which amino acid ?
- (A) Phenylalanine
(B) Tyrosine
(C) Tryptophan
(D) Methionine
93. Phenylketonuria is typically diagnosed through newborn screening programs by measuring the levels of which compound in the baby's blood ?
- (A) Glucose
(B) Insulin
(C) Phenylalanine
(D) Hemoglobin

94. The main treatment approach for individuals with phenylketonuria involves restricting the dietary intake of which amino acid ?
- (A) Tyrosine
 - (B) Phenylalanine
 - (C) Tryptophan
 - (D) Methionine
95. Which of the following is a genetic disorder caused by the deficiency of an enzyme involved in the metabolism of purine nucleotides ?
- (A) Cystic fibrosis
 - (B) Phenylketonuria
 - (C) Tay-Sachs disease
 - (D) Lesch-Nyhan syndrome
96. Which of the following is a symptom associated with Lesch-Nyhan syndrome, a disorder of nucleic acid metabolism ?
- (A) Retinal degeneration
 - (B) Muscle weakness and wasting
 - (C) Intellectual disability
 - (D) Severe skin rash
97. Alkaptonuria is a rare disorder characterized by the accumulation of homogentisic acid due to the deficiency of which enzyme ?
- (A) Tyrosinase
 - (B) Phenylalanine hydroxylase
 - (C) Homogentisate oxidase
 - (D) Xanthine oxidase
98. Which of the following is an inherited disorder characterized by the inability to break down lipids due to a deficiency of the enzyme acid lipase ?
- (A) Gaucher's disease
 - (B) Fabry disease
 - (C) Niemann-Pick disease
 - (D) Tay-Sachs disease
99. Gaucher disease is an inherited metabolic disorder characterized by the deficiency of which enzyme ?
- (A) Acid lipase
 - (B) Glucocerebrosidase
 - (C) Acid sphingomyelinase
 - (D) Alpha-galactosidase A
100. Which of the following is a common symptom of Gaucher disease ?
- (A) Muscle weakness and wasting
 - (B) Intellectual disability
 - (C) Enlarged liver and spleen
 - (D) Retinal degeneration

(Only for Rough Work)

4. Four alternative answers are mentioned for each question as—A, B, C & D in the booklet. The candidate has to choose the correct answer and mark the same in the OMR Answer-Sheet as per the direction :

Example :

Question :

Q. 1 (A) ● (C) (D)

Q. 2 (A) (B) ● (D)

Q. 3 (A) ● (C) (D)

Illegible answers with cutting and over-writing or half filled circle will be cancelled.

5. Each question carries equal marks. Marks will be awarded according to the number of correct answers you have.
6. All answers are to be given on OMR Answer sheet only. Answers given anywhere other than the place specified in the answer sheet will not be considered valid.
7. Before writing anything on the OMR Answer Sheet, all the instructions given in it should be read carefully.
8. After the completion of the examination candidates should leave the examination hall only after providing their OMR Answer Sheet to the invigilator. Candidate can carry their Question Booklet.
9. There will be no negative marking.
10. Rough work, if any, should be done on the blank pages provided for the purpose in the booklet.
11. To bring and use of log-book, calculator, pager and cellular phone in examination hall is prohibited.
12. In case of any difference found in English and Hindi version of the question, the English version of the question will be held authentic.

Impt. : On opening the question booklet, first check that all the pages of the question booklet are printed properly. If there is any discrepancy in the question Booklet, then after showing it to the invigilator, get another question Booklet of the same series.

4. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार सम्भावित उत्तर—A, B, C एवं D हैं। परीक्षार्थी को उन चारों विकल्पों में से सही उत्तर छँटना है। उत्तर को OMR आन्सर-शीट में सम्बन्धित प्रश्न संख्या में निम्न प्रकार भरना है :

उदाहरण :

प्रश्न :

प्रश्न 1 (A) ● (C) (D)

प्रश्न 2 (A) (B) ● (D)

प्रश्न 3 (A) ● (C) (D)

अपठनीय उत्तर या ऐसे उत्तर जिन्हें काटा या बदला गया है, या गोले में आधा भरकर दिया गया, उन्हें निरस्त कर दिया जाएगा।

5. प्रत्येक प्रश्न के अंक समान हैं। आपके जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।
6. सभी उत्तर केवल ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर ही दिये जाने हैं। उत्तर-पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।
7. ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाये।
8. परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी OMR Answer Sheet उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें। परीक्षार्थी अपने साथ प्रश्न-पुस्तिका ले जा सकते हैं।
9. निगेटिव मार्किंग नहीं है।
10. कोई भी रफ कार्य, प्रश्न-पुस्तिका के अन्त में, रफ-कार्य के लिए दिए खाली पेज पर ही किया जाना चाहिए।
11. परीक्षा-कक्ष में लॉग-बुक, कैलकुलेटर, पेजर तथा सेल्युलर फोन ले जाना तथा उसका उपयोग करना वर्जित है।
12. प्रश्न के हिन्दी एवं अंग्रेजी रूपान्तरण में भिन्नता होने की दशा में प्रश्न का अंग्रेजी रूपान्तरण ही मान्य होगा।

महत्वपूर्ण : प्रश्नपुस्तिका खोलने पर प्रथमतः जाँच कर देख लें कि प्रश्न-पुस्तिका के सभी पृष्ठ भलीभाँति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्षनिरीक्षक को दिखाकर उसी सिरीज की दूसरी प्रश्न-पुस्तिका प्राप्त कर लें।