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Previous Year Paper
2017 BIOCHEMISTRY



DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

Test Booklet Series

T. B. C. : AP - 3 - 17/18

A

TEST BOOKLET

ASSISTANT PROFESSOR IN O.M.E.S.

Sl. No.

1187

(BIOCHEMISTRY)

Time Allowed : 3 Hours

Maximum Marks : 200

: INSTRUCTIONS TO CANDIDATES :

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET **DOES NOT** HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET OF THE SAME SERIES ISSUED TO YOU.
2. ENCODE CLEARLY THE TEST BOOKLET SERIES A, B, C OR D, AS THE CASE MAY BE, IN THE APPROPRIATE PLACE IN THE ANSWER SHEET USING BALL POINT PEN (BLUE OR BLACK).
3. You have to enter your **Roll No.** on the Test Booklet in the Box provided alongside. **DO NOT** write *anything else* on the Test Booklet.
4. **YOU ARE REQUIRED TO FILL UP & DARKEN** ROLL NO., TEST BOOKLET / QUESTION BOOKLET SERIES IN THE ANSWER SHEET AS WELL AS FILL UP TEST BOOKLET / QUESTION BOOKLET SERIES AND SERIAL NO. AND ANSWER SHEET SERIAL NO. IN THE ATTENDANCE SHEET CAREFULLY. **WRONGLY FILLED UP ANSWER SHEETS ARE LIABLE FOR REJECTION AT THE RISK OF THE CANDIDATE.**
5. This Test Booklet contains **200** items (questions). Each item (question) comprises four responses (answers). You have to select the correct response (answer) which you want to mark (darken) on the Answer Sheet. In case, you feel that there is more than one correct response (answer), you should mark (darken) the response (answer) which you consider the best. In any case, choose **ONLY ONE** response (answer) for each item (question).
6. You have to mark (darken) all your responses (answers) **ONLY** on the **separate Answer Sheet** provided by using **BALL POINT PEN (BLUE OR BLACK)**. See instructions in the Answer Sheet.
7. All items (questions) carry equal marks. All items (questions) are compulsory. Your total marks will depend only on the number of correct responses (answers) marked by you in the Answer Sheet. **There will be no negative markings for wrong answers.**
8. Before you proceed to mark (darken) in the Answer Sheet the responses to various items (questions) in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per the instructions sent to you with your **Admission Certificate**.
9. After you have completed filling in all your responses (answers) on the Answer Sheet and after conclusion of the examination, you should hand over to the Invigilator the *Answer Sheet* issued to you. You are allowed to take with you the candidate's copy / second page of the Answer Sheet along with the **Test Booklet**, after completion of the examination, for your reference.
10. Sheets for rough work are appended in the Test Booklet at the end.

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SEAL

1. Water-soluble form of Vitamin K is :

- (A) Phylloquinone
- (B) Menaquinone
- (C) Menadione
- (D) All of the above

2. Jaundice is clinically evident when :

- (A) Serum total bilirubin exceeds > 1 mg%
- (B) Serum total bilirubin exceeds > 2 mg%
- (C) Serum total bilirubin exceeds > 1.5 mg%
- (D) Serum total bilirubin exceeds > 0.1 mg%

3. Familial hypercholesterolaemia is most often due to :

- (A) Apo E deficiency
- (B) Acyl CoA deficiency
- (C) LDL receptor deficiency
- (D) LCAT deficiency

4. Which of the following is increased in lipoprotein lipase deficiency ?

- (A) VLDL
- (B) LDL
- (C) HDL
- (D) Chylomicrons

5. The following are the blood and urine biochemical report of a patient :

- (i) Serum bilirubin – 0.8 mg%

(ii) Conjugated bilirubin – 0.2 mg%

(iii) ALP – 100 IU/L

(iv) AST – 32 IU/L

(v) ALT – 35 IU/L

(vi) Urine bile pigment – negative

(vii) Urine urobilinogen – traces

What is the probable diagnosis ?

- (A) Pre-hepatic jaundice
- (B) Hepatic jaundice
- (C) Post-hepatic jaundice
- (D) Normal liver function

6. The storage form of Vitamin A is :

- (A) Retinol palmitate
- (B) Retinal palmitate
- (C) All trans retinal
- (D) Retinoic acid

7. Which of the following would be observed in a patient with starvation for 72 hours ?

- (A) Increased ketosis due to breakdown of fats
- (B) Increased gluconeogenesis by muscle protein breakdown
- (C) Increased glycogenolysis
- (D) Increased glycolysis

8. In hyperparathyroidism :
- (A) Both serum calcium and serum phosphorus increase
 - (B) Serum calcium increases and serum phosphorus decreases
 - (C) Serum calcium decreases and serum phosphorus increases
 - (D) Both of them decreases
9. If a substance present in blood is filtered by kidney, is reabsorbed and not secreted, then clearance of that substance will be :
- (A) = GFR
 - (B) < GFR
 - (C) > GFR
 - (D) Not related to GFR
10. Which of the following biochemical reactions does not occur in mitochondria ?
- (A) Kreb's cycle
 - (B) Urea cycle
 - (C) Cori's cycle
 - (D) Fatty acid oxidation
11. NAD^+ -dependent dehydrogenases are assayed at :
- (A) 260 nm
 - (B) 280 nm
 - (C) 340 nm
 - (D) 600 nm
12. The plasma protein employed as marker for oncofetal tumour is :
- (A) Human chorionic gonadotrophin
 - (B) Alpha fetoprotein
 - (C) Prostate-specific antigen
 - (D) Calcitonin
13. Least predominant immunoglobulin is :
- (A) IgG
 - (B) IgA
 - (C) IgM
 - (D) IgE
14. The following is true about coding strand of DNA :
- (A) Acts as template for mRNA
 - (B) Contains nucleotide sequence complementary to RNA transcript
 - (C) Matches with RNA transcript that encodes protein
 - (D) None of the above
15. What is involved in formation of dTMP from dUMP ?
- (A) $\text{N}^5, \text{N}^{10}$ -methylene tetrahydrofolate
 - (B) Formiminofolate
 - (C) N^5 -formylfolate
 - (D) Dihydrofolate

16. The primary defect in Xeroderma pigmentosum is :
- (A) Formation of thymine dimer
 - (B) Poly-ADP-ribose polymerase is defective
 - (C) Exonuclease is defective
 - (D) Formation of adenine dimer
17. The following is the specific test for Gout:
- (A) Raised serum uric acid level
 - (B) Raised uric acid in synovial fluid of joint
 - (C) Raised urea level
 - (D) Raised urease enzyme level
18. Vitamin B12 acts as coenzyme for the following enzyme :
- (A) Isocitrate dehydrogenase
 - (B) Homocysteine methyltransferase
 - (C) Glycogen synthase
 - (D) Glucose-6-phosphate dehydrogenase
19. If pH of a specific protein in an electrophoretic field is above its isoelectric point, then the protein will :
- (A) Precipitate
 - (B) Not move
 - (C) Migrate to cathode
 - (D) Migrate to anode
20. Structure of protein is best studied by :
- (A) X-ray crystallography
 - (B) Ultra centrifugation
 - (C) Using Sanger's reagent
 - (D) Sucrose density gradient centrifugation
21. The integral membrane glycoprotein of human RBCs is :
- (A) Porin
 - (B) Ankyrin
 - (C) Spectrin
 - (D) Glycophorin
22. Hexokinase is a :
- (A) Transferase
 - (B) Reductase
 - (C) Oxido-reductase
 - (D) Oxidase
23. The molecular weight of a protein can be best determined by :
- (A) PAGE
 - (B) SDS-PAGE
 - (C) Isoelectric focussing
 - (D) Ion exchange chromatography
24. Levels of VLDL and LDL increase in blood due to high intake of :
- (A) Glucose diet
 - (B) Fructose diet
 - (C) Lactose diet
 - (D) Starch diet

25. In which one of the following tissues is glucose transport into the cell enhanced by insulin ?
- (A) Brain
(B) Liver
(C) Red blood cells
(D) Adipose tissue
26. Which of the following process can transport a solute against its concentration gradient ?
- (A) Active mediated transport
(B) Passive mediated transport
(C) Diffusion
(D) Reverse osmosis
27. Which of the following is a selenium-containing enzyme ?
- (A) Dihydrofolate reductase
(B) Dihydrobiopterin reductase
(C) Glutathione peroxidase
(D) Glutathione reductase
28. Dihydrobiopterin participates in the catabolism of :
- (A) Proline
(B) Phenylalanine
(C) Tyrosine
(D) Tryptophan
29. Conversion of fibrinogen to fibrin is due to proteolytic activity of :
- (A) Thrombin
(B) Plasmin
(C) Trypsin
(D) Renin
30. Antimycin A is an inhibitor of :
- (A) Complex I
(B) Complex II
(C) Complex III
(D) Complex IV
31. Trypsin cleaves protein after :
- (A) Aromatic amino acid
(B) Basic amino acid
(C) Acidic amino acid
(D) Neutral amino acid
32. Chymotrypsin cleaves protein after :
- (A) Aromatic amino acid
(B) Basic amino acid
(C) Acidic amino acid
(D) Neutral amino acid
33. Complimentary RNA strand transcribed from DNA sequence AGTCAT will read as :
- (A) UCAGUA
(B) AUGACU
(C) TCAGTA
(D) ATGACT
34. N-acetylglutamate is a co-factor of the enzyme :
- (A) Glutamate dehydrogenase
(B) Glutamate transaminase
(C) Carbamoyl phosphate synthase I
(D) Glutaminase

35. Phosphoenol pyruvate is converted to pyruvate by the action of :
- (A) Pyruvate kinase
 - (B) Pyruvate carboxylase
 - (C) Phosphoenol pyruvate carboxykinase
 - (D) Enolase
36. Warburg effect is observed in :
- (A) Quiescent cells
 - (B) Stem cells
 - (C) Apoptotic cells
 - (D) Malignant cells
37. ATP is required for carboxylation of the following molecules except :
- (A) Pyruvate
 - (B) Acetyl CoA
 - (C) Glutamate
 - (D) Methylmalonyl CoA
38. In Wilson disease copper is deposited in all of the following sites except :
- (A) Lens
 - (B) Lentiform nucleus
 - (C) Liver
 - (D) Renal tubules
39. Substrate-level phosphorylation is associated with activities of all of the following enzymes except :
- (A) Phosphoglycerate kinase
 - (B) Phosphofructokinase
 - (C) Pyruvate kinase
 - (D) Succinate thiokinase
40. All of the following are the sources of NADPH except :
- (A) Thioesterase
 - (B) Isocitrate dehydrogenase
 - (C) Malic enzyme
 - (D) Pentose phosphate pathway
41. Following is an example of omega-3 fatty acid :
- (A) Linoleic acid
 - (B) Alpha linoleic acid
 - (C) Gamma linoleic acid
 - (D) Arachidonic acid
42. The most abundant amino acid in collagen is :
- (A) Valine
 - (B) Lysine
 - (C) Glycine
 - (D) Alanine
43. Transport of glucose from the lumen to the intestinal mucosal cells is coupled with the diffusion of :
- (A) K^+
 - (B) Cl^-
 - (C) HCO_3^-
 - (D) Na^+

44. Glucose is completely catabolized to CO_2 and water by reactions in glycolysis and TCA cycle. Release of CO_2 is catalyzed by the following enzymes except :
- Pyruvate dehydrogenase complex
 - Isocitrate dehydrogenase
 - Alpha-ketoglutarate dehydrogenase complex
 - Succinate dehydrogenase
45. All of the following enzymes catalyze substrate-level phosphorylation except :
- Pyruvate kinase
 - Phosphoenolpyruvate carboxykinase
 - 3-phosphoglycerate kinase
 - Succinate thiokinase/succinyl CoA synthetase
46. Vitamin B12 acts as co-enzyme to all of the following enzymes except :
- L-methylmalonyl CoA mutase
 - Homocysteine methyl transferase
 - Leucine aminopeptidase
 - HMG CoA synthase
47. The bonds in protein structure that are not broken on denaturation are :
- Hydrogen bonds
 - Peptide bonds
 - Ionic bonds
 - Hydrophobic interactions
48. The connecting link between HMP shunt and lipid synthesis is :
- Ribose
 - NADPH
 - Sedoheptulose-7-phosphate
 - NADH
49. The following is a sulfur containing essential amino acid :
- Methionine
 - Cysteine
 - Cystine
 - Seleno-cysteine
50. Impairment in the synthesis of dopamine by the brain is a major causative factor for :
- Parkinson's disease
 - Addison's disease
 - Cushing's syndrome
 - Goiter
51. In hemolytic jaundice, van den Bergh reaction is :
- Indirect positive
 - Direct positive
 - Biphasic
 - inconclusive
52. The metabolic (endogenous) water is derived by the oxidation of :
- Carbohydrates
 - Proteins
 - Fats
 - All of the above

53. The essential amino acid limiting in rice is :
- Methionine
 - Tryptophan
 - Lysine
 - Histidine
54. The amino acids are said to be ketogenic when the carbon skeleton is degraded to :
- Succinyl CoA
 - Fumarate
 - Acetyl CoA
 - Pyruvate
55. Aspartate transcarbamoylase in pyrimidine pathway is inhibited by :
- ATP
 - CTP
 - ADP
 - AMP
56. Iron in the enterocyte can be stored as :
- Transferrin
 - Ferritin
 - Ceruloplasmin
 - Hemosiderin
57. Catabolite repression is mediated by a Catabolite gene Activator Protein (CAP) is association with :
- AMP
 - GMP
 - cGMP
 - cAMP
58. Hyperbolic Oxygen Dissociation Curve is a property of :
- Haemoglobin
 - Myoglobin
 - Carboxy haemoglobin
 - Methaemoglobin
59. All of the following about GLUT4 are correct except :
- It is present in muscle and adipose tissue
 - It is a transmembrane protein
 - It mediates energy-dependent uptake of glucose
 - Number of GLUT4 molecules are increased in the cell membrane by insulin
60. The most frequent conjugation reaction in Phase-II detoxification :
- Glucuronidation
 - Acetylation
 - Sulfation
 - Conjugation with glutathione
61. Acute phase proteins include all except :
- c-reactive protein
 - Haemoglobin
 - Fibrinogen
 - Haptoglobin

62. Most plasma proteins are glycoproteins except :
- Haptoglobin
 - Transferrin
 - Albumin
 - α 1-antitrypsin
63. Following statements are true for active sites in enzyme except :
- They are clefts that occupy small region in enzyme molecule
 - They are flexible in structure
 - They possess a substrate binding and a catalytic site
 - The substrate bind at the active site by covalent bond
64. All are the competitive inhibitors of enzyme action, except :
- Lovastatin
 - Malonate
 - Iodoacetate
 - Methotrexate
65. 3'-End of all functional mature tRNAs has :
- The anticodon
 - CCA sequence
 - Poly-A tail
 - Methyl-guanosine triphosphate cap
66. To facilitate the association of RNAP II, which one of the following interact with promoter site of eukaryotic mRNA gene ?
- Termination factor
 - General Transcription Factor (GTF)
 - Elongation factor
 - Single strand binding proteins
67. Following are water-soluble radical trapping anti-oxidants, except :
- Ascorbate
 - Uric acid
 - Carotenes
 - Plant polyphenols
68. Which one is the wrong statement regarding the role of tumor suppressor gene to cause tumor ?
- Both alleles must be affected
 - Gain of function of a protein
 - Mutation present in germ cell or in somatic cell
 - Strong tissue preference
69. All are oncogenes, except :
- Ras
 - Myc
 - RB
 - Src
70. Following are principal buffers of extracellular fluid except :
- Bicarbonate buffer
 - Hemoglobin buffer
 - Phosphate buffer
 - Protein buffer

71. In Hartnup's disease Pellagra like symptoms are observed due to the impairment of absorption of the following amino acid :
- Tyrosine
 - Tryptophan
 - Phenyl alanine
 - Methionine
72. Oxygen Dissociation curve shifts to right due to :
- Drop in 2, 3-bisphosphoglycerate
 - Increase in hydrogen ion concentration
 - Decrease in pCO_2 in blood
 - Decrease in chloride concentration in blood
73. Creatinine Clearance is decreased in :
- Acute tubular necrosis
 - Acute Glomerulonephritis
 - Hypertension
 - mMyopathies
74. Porphyria with autosomal recessive inheritance is :
- Intermittent porphyria
 - Congenital Erythropoietic Porphyria
 - Protoporphyrin
 - Hereditary Coproporphyrin
75. Secretion of gastric HCl is stimulated by :
- Secretin
 - Pancreozymin
 - Histamine
 - Somatostatin
76. All are true about complement system, except :
- It resembles blood coagulation system like a cascade
 - The complement factors are not heat labile
 - The system is involved in inflammation, cell lysis and clearance of Ag-Ab complexes
 - Deficiency of various components cause complement deficiency disorders
77. Nitrogenous base in IMP (inosine monophosphate) is :
- Xanthine
 - Hypoxanthine
 - Insulin
 - Choline
78. Uricemia (raised blood uric acid) is associated in all of the following conditions, except :
- Lesch-Nyhan syndrome
 - Psoriasis
 - von Gierke's diseases
 - Adenosine deaminase deficiency

79. All are true for Cytochrome p-450, except :
- (A) They are hemoproteins
 - (B) They are found in microsomal fraction of cells in hepaocytes and adrenal gland
 - (C) NADH and NADPH are involved in its reaction mechanism
 - (D) Most isoforms of Cytochromo p-450 are inducible
80. Rhodopsin is :
- (A) Opsin + 11 cis retinal
 - (B) Opsin + 11 cis retinol
 - (C) Opsin + all trans retinal
 - (D) Opsin + 11 trans retinol
81. β -oxidation of odd-chain fatty acids produces :
- (A) Succinyl CoA
 - (B) Propionyl CoA
 - (C) Methyl Malonyl CoA
 - (D) Malonyl CoA
82. Triglycerides are transported from gut to tissue by :
- (A) Chylomicrons
 - (B) VLDL
 - (C) LDL
 - (D) HDL
83. Inborn error associated with inherited defect in α -keto acid dehydrogenase complex is :
- (A) Alkaptonuria
 - (B) Maple syrup urine disease
 - (C) Isovaleric academia
 - (D) Hartnup's disease
84. Selenium sparing effect is associated with :
- (A) Vitamin A
 - (B) Vitamin C
 - (C) Vitamin D
 - (D) Vitamin E
85. Triple helix is found in :
- (A) Cystine
 - (B) Collagen
 - (C) Pectin
 - (D) DNA
86. Cyanide is toxic because it :
- (A) Inhibits cytochrome C oxidase
 - (B) Forms cyanmethaemoglobin
 - (C) Inhibits ATP carrier in mitochondria
 - (D) Inhibits $\text{Na}^+ - \text{K}^+$ ATPase
87. Following is not a branched chain amino acid :
- (A) Valine
 - (B) Leucine
 - (C) Isoleucine
 - (D) Lysine

88. Hyperbolic oxygen dissociation curve is a property of :
- (A) Hemoglobin
 - (B) Myoglobin
 - (C) Methemoglobin
 - (D) Carboxy-hemoglobin
89. Secretion of gastric HCl is stimulated by :
- (A) Secretin
 - (B) Pancreozymin
 - (C) Histamine
 - (D) Melatonin
90. Which of the following is not a ketone body ?
- (A) Acetoacetate
 - (B) Acetoacetyl CoA
 - (C) 3-hydroxybutyrate
 - (D) Acetone
91. All of the following are mitochondrial reactions except :
- (A) Transamination
 - (B) Ketone body formation
 - (C) Beta oxidation of fatty acids
 - (D) Kreb's cycle
92. Absence of carnitine will affect :
- (A) Fatty acid synthesis
 - (B) Fatty acid oxidation
 - (C) Creatinine formation
 - (D) Urea synthesis
93. Hexose monophosphate shunt is responsible for production of :
- (A) Hexose
 - (B) NADH
 - (C) Ribose
 - (D) ATP
94. Phosphorylation of glycogen synthase :
- (A) Increases synthesis of glycogen
 - (B) Decreases synthesis of glycogen
 - (C) Has no effect on glucogen synthesis
 - (D) Inhibits glycogenolysis
95. UDP is a carrier of :
- (A) Monosaccharides
 - (B) Fatty acids
 - (C) Nucleic acids
 - (D) Amino acids
96. Chylomicrons are formed within :
- (A) Intestinal lumen
 - (B) Enterocytes
 - (C) Adipocytes
 - (D) Lymphatic vessels
97. Activity of amylase cannot convert starch into :
- (A) Maltotriose
 - (B) Limit dextrin
 - (C) Maltose
 - (D) Glucose

98. Cytochrome p450 is present in :
(A) Mitochondria
(B) Golgi complex
(C) Endoplasmic reticulum
(D) Lysosome
99. Glucose 6-phosphate deficiency leads to :
(A) Pernicious anemia
(B) Hemolytic anemia
(C) Glycogen storage disease
(D) Galactosemia
100. Maple syrup urine disease results from defect in metabolism of :
(A) Branched chain amino acids
(B) Acidic amino acids
(C) Basic amino acids
(D) Imino acids
101. Blood level of free fatty acids increases the following :
(A) High fat diet
(B) Diet rich in carbohydrates
(C) Starvation
(D) Intake of cholesterol-lowering drugs
102. Lipoic acid is a component of :
(A) Lipoproteins
(B) Fatty acid synthetase complex
(C) Pyruvate dehydrogenase complex
(D) Electron transport chain
103. Thrombus is composed of :
(A) Elastin
(B) Keratin
(C) Fibrin
(D) Collagen
104. DNA double helix is :
(A) Anti-clockwise and right handed
(B) Anti-clockwise and left handed
(C) Clockwise and left handed
(D) Clockwise and right handed
105. Sarcosine is a metabolic product derived from :
(A) Glycine
(B) Methionine
(C) Arginine
(D) Alanine
106. BLAST(Basic Local Alignment Search Tool) is not employed for the analysis of :
(A) Proteins
(B) DNA
(C) RNA
(D) Lippids
107. Sequencing of the first human genome was completed in :
(A) 2003
(B) 2004
(C) 2001
(D) 2007

108. Which of the following organ is not calcium metabolism ?
- (A) Kidney
(B) Gut
(C) Pancreas
(D) Bone
109. Which class of MHC antigen is primarily expressed on B lymphocytes ?
- (A) I
(B) II
(C) III
(D) All of the above
110. Deamination of cytosine produces :
- (A) Uracil
(B) Inosine
(C) Thymine
(D) Adenine
111. Which amino acid is most likely to be found in the interior of a protein ?
- (A) Glutamic Acid
(B) Lysine
(C) Histidine
(D) Leucine
112. Which of the following is responsible for Alzheimer's disease ?
- (A) PrP_{sc} Protein
(B) PrP_c Protein
(C) Amyloid β
(D) Parkin
113. Which of the following is responsible for Prion disease ?
- (A) PrP_{sc} Protein
(B) PrP_c Protein
(C) Amyloid β
(D) Parkin
114. Which of the following DNA mutations results in insertion of an inappropriate stop codon ?
- (A) Frameshift mutation
(B) Nonsense mutation
(C) Missense mutation
(D) Silent mutation
115. Alpha-linolenic acid is :
- (A) Omega-3 fatty acid
(B) Omega-6 fatty acid
(C) Saturated fatty acid
(D) Trans fatty acid
116. Which of these promotes class-switching of antibodies ?
- (A) Interferon Gamma
(B) Tumour Necrosis Factor
(C) Interleukin 1
(D) Interleukin 4
117. Which of these is marker for B cells ?
- (A) CD59
(B) CD19
(C) CD28
(D) CD25

118. Gamma-linolenic acid is :
 (A) Omega-3 fatty acid
 (B) Omega-6 fatty acid
 (C) Saturated fatty acid
 (D) Trans fatty acid
119. Cytochrome p-450 is located in :
 (A) Endoplasmic reticulum
 (B) Golgi complex
 (C) Mitochondria
 (D) Lysosomes
120. Number of ribosomal RNAs in eukaryotes is :
 (A) 3
 (B) 4
 (C) 5
 (D) 6
121. Inosinic acid is the biological precursor of :
 (A) Cytosine and Uric acid
 (B) Adenylic acid and Guanylic acid
 (C) Orotic acid and Uridylic acid
 (D) Creatinine and Thymidine
122. Which of the following substance is responsible for carcinoid syndrome ?
 (A) Tryptamine
 (B) Serotonin
 (C) Tyramine
 (D) Histamine
123. All are true about phenylketonuria except :
 (A) Deficiency of Phenylalanine hydroxylase
 (B) Mental retardation
 (C) Increased urinary excretion of homogentistic acid
 (D) Increased formation of phenylacetylglutamine
124. All of the following tissues are capable of using ketone bodies except :
 (A) Brain
 (B) Renal cortex
 (C) Red blood cells
 (D) Cardiac Muscle
125. The lipoprotein with fastest electrophoretic mobility and lowest triglyceride content is :
 (A) VLDL
 (B) IDL
 (C) LDL
 (D) HDL
126. Characteristic biochemical finding in Wolman's disease is :
 (A) Agammaglobulinemia
 (B) Hypercholesterolemia
 (C) Hyperglycinemia
 (D) Decrease in ceruloplasmin

127. Ascorbic acid is required for the reaction catalyzed by :
- (A) Hydrolase
 - (B) Glycosylase
 - (C) Hydroxylase
 - (D) Dehydrogenase
128. If a person had cheilosis, you might suspect a deficiency of :
- (A) Niacin
 - (B) Riboflavin
 - (C) Vitamin C
 - (D) Thiamin
129. Golgi complex is responsible for :
- (A) Synthesis of proteins
 - (B) Modification of proteins
 - (C) Degradation of proteins
 - (D) Ubiquitination of proteins
130. LDH has the following number of isoenzymes :
- (A) 3
 - (B) 4
 - (C) 5
 - (D) 6
131. Which one of the following RNA contains pseudouridine ?
- (A) tRNA
 - (B) mRNA
 - (C) rRNA
 - (D) 16S RNA
132. Hemolytic anemia in patients taking anti-malarial drug primaquine can be attributable to the deficiency of :
- (A) Glycogen phosphorylase
 - (B) Glyceraldehyde 3-phosphate hydrogenase
 - (C) Glucose 6-phosphate dehydrogenase
 - (D) Glucose 6-phosphatase
133. Fetal blood has higher affinity for oxygen than adult blood because :
- (A) HbF has decreased affinity for 2, 3-BPG
 - (B) HbF has increased affinity for 2, 3-BPG
 - (C) HbA₂ appears early in fetal life
 - (D) Iron remains in ferric form in HbF
134. Therapeutic use of streptokinase is based on its :
- (A) Antibacterial activity
 - (B) Fibrin polymerizing activity
 - (C) Fibrinolytic activity
 - (D) Protein phosphorylating activity
135. Aspirin inhibits platelet aggregation by inhibition of :
- (A) Coagulation pathway
 - (B) Phospholipase C activity
 - (C) Lipooxygenase activity
 - (D) Cyclooxygenase activity

136. Pellagra is the manifestation of all the following conditions, except :
- (A) Thiamine deficiency
 - (B) Pyridoxal deficiency
 - (C) Carcinoid syndrome
 - (D) Tryptophan deficiency
137. The metal present in Vitamin B₁₂ is :
- (A) Copper
 - (B) Cobalt
 - (C) Chromium
 - (D) Zinc
138. Which one of the following is not synthesized from tyrosine ?
- (A) Triiodothyronine
 - (B) Serotonin
 - (C) Epinephrine
 - (D) Dopamine
139. Which one of the following is a hemoprotein ?
- (A) Ferredoxin
 - (B) Adrenodoxin
 - (C) Cytochrome
 - (D) Ferritin
140. Which one of the following statements about glycosylated hemoglobin (HBA1c) is not true ?
- (A) Its formation is reversible
 - (B) It is used for the assessment of long term glycemic control
 - (C) HBA1c can be assayed by HPLC method
 - (D) It reflects glycemic history of preceding 2-3 months
141. Hopkins-Cole test is performed on proteins to detect the presence of :
- (A) Peptide bond
 - (B) Imidazole group
 - (C) Indole group
 - (D) Guanidino group
142. Which one of the following vitamins is considered as a hormone ?
- (A) Vitamin K
 - (B) Vitamin B₁₂
 - (C) Vitamin C
 - (D) Vitamin D
143. All of the following are regulatory enzymes of gluconeogenesis, except :
- (A) Glucokinase
 - (B) Pyruvate carboxylase
 - (C) Glucose 6-phosphatase
 - (D) Phosphoenolpyruvate carboxykinase
144. The glycosaminoglycan that serves as an anticoagulant :
- (A) Heparin
 - (B) Hyaluronic acid
 - (C) Chondroitin sulfate
 - (D) Dermatan sulfate

145. Synthesis of 2, 3-bisphosphoglycerate occurs in the tissue namely :
- (A) Liver
 - (B) Kidney
 - (C) Erythrocytes
 - (D) Brain
146. The hormone that is hypoglycemic :
- (A) Insulin
 - (B) Epinephrine
 - (C) Glucagon
 - (D) Thyroxine
147. The blotting technique used for the identification of DNA is :
- (A) Northern blot
 - (B) Southern blot
 - (C) Western blot
 - (D) South-Western blot
148. The synthesis of urea occurs in :
- (A) Kidney
 - (B) Liver
 - (C) Muscle
 - (D) Brain
149. The base that is never found in genetic code :
- (A) Adenine
 - (B) Guanine
 - (C) Thymine
 - (D) Cytosine
150. The non-protein compound which can have enzymatic activity is :
- (A) DNA
 - (B) RNA
 - (C) Lipids
 - (D) Carbohydrates
151. The functionally active form of Vitamin – D is :
- (A) Cholecalciferol
 - (B) Ergocalciferol
 - (C) Dehydrocholesterol
 - (D) Calcitriol
152. Name the immunoglobulin involved in body allergic reactions :
- (A) IgA
 - (B) IgE
 - (C) IgD
 - (D) IgM
153. The patients of sickle cell anemia are resistant to :
- (A) Filaria
 - (B) Malaria
 - (C) Diabetes
 - (D) Trypanosomiasis
154. The nitrogenous base present in lecithin is :
- (A) Choline
 - (B) Ethanolamine
 - (C) Inositol
 - (D) Serine
155. Fatty acids enter mitochondrial with the help of :
- (A) Creatine
 - (B) Carnitine
 - (C) Clathrin
 - (D) Biotin

156. Rotenone is an inhibitor of :
- (A) Complex I
(B) Complex II
(C) Complex III
(D) Complex IV
157. Oligomycin is an inhibitor of :
- (A) Adenylate cyclase
(B) Phosphodiesterase
(C) ATPase
(D) ATP synthase
158. Plasma protein that binds free heme is :
- (A) Albumin
(B) Haptoglobin
(C) Hemopexin
(D) Transferrin
159. Acetyl CoA carboxylase is located in :
- (A) Nucleus
(B) Lysosome
(C) Cytosol
(D) Mitochondria
160. Melatonin is synthesized from :
- (A) Tryptophan
(B) Tyrosine
(C) Phenylalanine
(D) Histidine
161. An example of a tumour suppressor gene is :
- (A) myc
(B) fos
(C) ras
(D) Rb
162. Vitamin B12 acts as co-enzyme to which one of the following enzyme ?
- (A) Isocitrate dehydrogenase
(B) Homocysteine methyltransferase
(C) Glycogen synthase
(D) Glucose-6-phosphate dehydrogenase
163. A segment of a eukaryotic gene that is not represented in the mature messenger RNA is known as :
- (A) Intron
(B) Exon
(C) Plasmid
(D) TATA Box
164. Which of the following group of proteins assist in the folding of other proteins ?
- (A) Proteases
(B) Proteasomes
(C) Templates
(D) Chaperones
165. Proteins targeted for destruction in eukaryotes are covalently linked to :
- (A) Clathrin
(B) Pepsin
(C) Laminin
(D) Ubiquitin

166. Which one of the following is a membrane bound enzyme that catalyzes the formation of cyclic AMP from ATP ?
- (A) Tyrosine Kinase
 - (B) Polymerase
 - (C) ATP synthase
 - (D) Adenylate cyclase
167. Which of the following elements influences body's ability to handle oxidative stress ?
- (A) Calcium
 - (B) Iron
 - (C) Potassium
 - (D) Selenium
168. Alpha helix and beta pleated sheet are the examples of :
- (A) Primary structure
 - (B) Secondary structure
 - (C) Tertiary structure
 - (D) Quaternary structure
169. The buffering capacity of a buffer is maximum at pH equal to :
- (A) 0.5
 - (B) pKa
 - (C) pKa + 1
 - (D) 2pKa
170. All is true about glutathione except :
- (A) It is a tripeptide
 - (B) It converts hemoglobin to methemoglobin
 - (C) It conjugates xenobiotics
 - (D) It scavenges free radicals and superoxide ions
171. The following separation technique depends on the molecular size of the protein :
- (A) Thin-layer chromatography
 - (B) Isoelectric focusing
 - (C) Gel Filtration chromatography
 - (D) Chromatography on a diethylaminoethyl (DEAE) cellulose column
172. A competitive inhibitor of an enzyme :
- (A) Increases K_m without affecting V_{max}
 - (B) Decreases K_m without affecting V_{max}
 - (C) Increases V_{max} without affecting K_m
 - (D) Decreases both V_{max} and K_m
173. Which of the following enzyme is stable at acid pH ?
- (A) Pepsin
 - (B) Trypsin
 - (C) Chymotrypsin
 - (D) Carboxypeptidase

174. Dinitrophenol causes :
- Inhibition of ATP synthase
 - Inhibition of electron transport
 - Uncoupling of oxidation and phosphorylation
 - Accumulation of ATP
175. Phenylalanine is the precursor of the following molecules, except :
- Tyrosine
 - Epinephrine
 - Thyroxin
 - Melatonin
176. Sources of the nitrogen in the urea cycle are :
- Aspartate and ammonia
 - Glutamate and ammonia
 - Arginine and ammonia
 - Uric acid and ammonia
177. If urine sample darkens on the standing, the most likely condition is :
- Phenylketonuria
 - Alkaptonuria
 - Maple syrup urine disease
 - Cystinuria
178. Pyruvate can be converted directly into all the following except :
- Phosphoenol pyruvate
 - Alanine
 - Acetyl CoA
 - Lactate
179. Fluoride, used in the collection of blood sample for the glucose estimation, inhibits the enzyme :
- Glucokinase
 - Hexokinase
 - Enolase
 - Glucose-6-phosphatase
180. Which one of the following RNA has abnormal purine bases ?
- tRNA
 - mRNA
 - rRNA
 - 16S RNA
181. Action of Nitric oxide is mediated through :
- cGMP
 - cAMP
 - Ca⁺⁺
 - Diacylglycerol
182. The amino acid carboxylated by Vitamin K is :
- Aspartate
 - Glutamate
 - Histidine
 - Proline
183. BRCA-2 gene associated with both male and female breast cancer is located to the chromosome :
- 17
 - 11
 - 13
 - 5

184. All are true about G-protein coupled receptors except :
- (A) G-protein coupled receptors are largest superfamily of cell surface receptors
 - (B) They typically have six helices that transverse the membrane
 - (C) G protein act as inhibitory and excitatory because of difference in alpha sub-unit
 - (D) The function of GPCR is to transduce signals that induce a cellular response to the environment
185. Which one of the following enzymes is absent in alkaptonuria ?
- (A) Homogentisic acid oxidase
 - (B) Tyrosine transaminase
 - (C) Tryptophan hydroxylase
 - (D) Phenylalanine decarboxylase
186. An increased anion gap is associated with :
- (A) Diabetic ketoacidosis
 - (B) Metabolic alkalosis
 - (C) Respiratory acidosis
 - (D) Respiratory alkalosis
187. All of the following are constituents of ganglioside molecule except :
- (A) Glycerol
 - (B) Sialic acids
 - (C) Hexose sugar
 - (D) Sphingosine
188. The following statements are all true for arachidonic acid except :
- (A) Can be synthesized from linoleic acid
 - (B) It is a 20 carbon fatty acid with five double bonds
 - (C) It is a precursor of PGI_2
 - (D) It is a precursor of TxA_2
189. Which of the following statements is true for immunoglobulins ?
- (A) Half-life of IgG is shorter than IgA and IgM
 - (B) Light chains determine the class of immunoglobulins
 - (C) Predominant immunoglobulin in respiratory secretions is IgA
 - (D) IgA crosses placental barrier
190. When $[S]$ is equal to K_m which of the following conditions exists ?
- (A) Half of the enzyme molecules are bound to substrate
 - (B) The velocity of the reaction is equal to V_{max}
 - (C) The velocity of the reaction is independent of substrate concentration
 - (D) Enzyme is completely saturated with substrate
191. Which of the following oxidation-reduction systems has highest redox-potential ?
- (A) Fe^{+3} cytochrome b/ Fe^{+2}
 - (B) Fe^{+3} cytochrome a/ Fe^{+2}
 - (C) Fumarate/succinate
 - (D) NAD^+ /NADH

192. Oxidation of which molecule in the body yields the maximum calories per gram ?
- Glucose
 - Glycogen
 - Animal protein
 - Triglyceride
193. The intake of which food stuff results in the greatest SDA ?
- Carbohydrates
 - Lipids
 - Proteins
 - Vitamins
194. Elongation of peptide chain involves the following molecules except :
- mRNA
 - GTP
 - Formylmethionyl tRNA
 - Tu, Ts and G factors
195. The Rho factor is involved in :
- Increase in the rate of RNA synthesis
 - Binding of catabolite repressor to promoter region
 - Proper termination of transcription
 - Proper initiation of transcription
196. Amanitin, the mushroom poison, inhibits :
- Glycoprotein synthesis
 - ATP synthesis
 - DNA synthesis
 - mRNA synthesis
197. How many high energy phosphate bond equivalents are required for amino acid activation for protein synthesis ?
- One
 - Two
 - Three
 - Four
198. Cyclic AMP acts as a second messenger for all the hormones below, except :
- FSH
 - Epinephrine
 - Glucagon
 - Estrogen
199. Which of the following laboratory tests will be useful in patients of primary hypothyroidism ?
- Estimation of T3
 - Estimation of T4
 - Estimation of TBG
 - Detection of auto-antibodies
200. Following statements regarding insulin are all correct except :
- Induces glucokinase activity
 - Inhibits acetyl CoA carboxylase
 - Converts glycogen phosphorylase to inactive form
 - Stimulates fatty acid synthase activity

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