

पुस्तिका में पृष्ठों की संख्या : 24
Number of Pages in Booklet : 24

प्रश्न-पत्र पुस्तिका संख्या /
Question Paper Booklet No.

पुस्तिका में प्रश्नों की संख्या : 180
No. of Questions in Booklet : 180

Paper Code : 02

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SUBJECT : Biochemistry

परीक्षा दिनांक - 13/09/2020

समय : 3.00 घण्टे
Time : 3.00 Hours

परीक्षा समय - 2:00 to 5:00 PM

अधिकतम अंक : 180
Maximum Marks : 180

प्रश्न-पत्र पुस्तिका एवं उत्तर पत्रक के पेपर सील/पॉलिथीन बैग को खोलने पर परीक्षार्थी यह सुनिश्चित कर लें कि उसके प्रश्न-पत्र पुस्तिका पर वही प्रश्न-पत्र पुस्तिका संख्या अंकित है जो उत्तर पत्रक पर अंकित है। इसमें कोई भिन्नता हो तो वीक्षक से दूसरा प्रश्न-पत्र प्राप्त कर लें। ऐसा न करने पर जिम्मेदारी अभ्यर्थी की होगी।

The candidate should ensure that Question Paper Booklet No. of the Question Paper Booklet and Answer Sheet must be same after opening the Paper Seal / Polythene bag. In case they are different, a candidate must obtain another Question Paper. Candidate himself shall be responsible for ensuring this.

परीक्षार्थियों के लिए निर्देश

1. सभी प्रश्नों के उत्तर दीजिए।
2. सभी प्रश्नों के अंक समान हैं।
3. प्रत्येक प्रश्न का केवल एक ही उत्तर दीजिए।
4. एक से अधिक उत्तर देने की दशा में प्रश्न के उत्तर को गलत माना जाएगा।
5. प्रत्येक प्रश्न के चार वैकल्पिक उत्तर दिये गये हैं, जिन्हें क्रमशः 1, 2, 3, 4 अंकित किया गया है। अभ्यर्थी को सही उत्तर निर्दिष्ट करते हुए उनमें से केवल एक गोले अथवा बबल को उत्तर पत्रक पर नीले बॉल प्वाइंट पेन से गहरा करना है।
6. OMR उत्तर पत्रक इस परीक्षा पुस्तिका के अन्दर रखा है। जब आपको परीक्षा पुस्तिका खोलने को कहा जाए, तो उत्तर-पत्र निकाल कर ध्यान से केवल नीले बॉल प्वाइंट पेन से विवरण भरें।
7. प्रत्येक गलत उत्तर के लिए प्रश्न अंक का 1/3 भाग काटा जायेगा। गलत उत्तर से तात्पर्य अशुद्ध उत्तर अथवा किसी भी प्रश्न के एक से अधिक उत्तर से है। किसी भी प्रश्न से संबंधित गोले या बबल को खाली छोड़ना गलत उत्तर नहीं माना जायेगा।
8. मोबाइल फोन अथवा इलेक्ट्रॉनिक यंत्र का परीक्षा हॉल में प्रयोग पूर्णतया वर्जित है। यदि किसी अभ्यर्थी के पास ऐसी कोई वर्जित सामग्री मिलती है तो उसके विरुद्ध आयोग द्वारा नियमानुसार कार्यवाही की जायेगी।
9. कृपया अपना रोल नम्बर ओ.एम.आर. पत्रक पर सावधानीपूर्वक सही भरें। गलत अथवा अपूर्ण रोल नम्बर भरने पर 5 अंक कुल प्राप्तांकों में से काटे जा सकते हैं।

चेतावनी : अगर कोई अभ्यर्थी नकल करते पकड़ा जाता है या उसके पास से कोई अनधिकृत सामग्री पाई जाती है, तो उस अभ्यर्थी के विरुद्ध पुलिस में प्राथमिकी दर्ज कराते हुए विविध नियमों-प्रावधानों के तहत कार्यवाही की जाएगी। साथ ही विभाग ऐसे अभ्यर्थी को भविष्य में होने वाली विभाग की समस्त परीक्षाओं से विवर्जित कर सकता है।

INSTRUCTIONS FOR CANDIDATES

1. Answer all questions.
2. All questions carry equal marks.
3. Only one answer is to be given for each question.
4. If more than one answers are marked, it would be treated as wrong answer.
5. Each question has four alternative responses marked serially as 1, 2, 3, 4. You have to darken only one circle or bubble indicating the correct answer on the Answer Sheet using BLUE BALL POINT PEN.
6. The OMR Answer Sheet is inside this Test Booklet. When you are directed to open the Test Booklet, take out the Answer Sheet and fill in the particulars carefully with blue ball point pen only.
7. 1/3 part of the mark(s) of each question will be deducted for each wrong answer. A wrong answer means an incorrect answer or more than one answers for any question. Leaving all the relevant circles or bubbles of any question blank will not be considered as wrong answer.
8. Mobile Phone or any other electronic gadget in the examination hall is strictly prohibited. A candidate found with any of such objectionable material with him/her will be strictly dealt as per rules.
9. Please correctly fill your Roll Number in O.M.R. Sheet. 5 Marks can be deducted for filling wrong or incomplete Roll Number.

Warning : If a candidate is found copying or if any unauthorized material is found in his/her possession, F.I.R. would be lodged against him/her in the Police Station and he/she would liable to be prosecuted. Department may also debar him/her permanently from all future examinations.

इस परीक्षा पुस्तिका को तब तक न खोलें जब तक कहा न जाए।

Do not open this Test Booklet until you are asked to do so.

02-□



1. Amino acid that forms a compound that acts as mediator of allergic reactions
 - (1) Glycine
 - (2) Histidine
 - (3) Serine
 - (4) Valine

2. Peptide that acts as antibiotic
 - (1) Bradykinin
 - (2) Angiotensin
 - (3) Gramicidin
 - (4) Kallidin

3. In collagen triple helix structure is an example of :
 - (1) Primary level of organization
 - (2) Secondary level of organization
 - (3) Tertiary level of organization
 - (4) Quaternary level of organization

4. All are examples of albuminoids except :
 - (1) Elastin
 - (2) Collagen
 - (3) Reticulin
 - (4) Protamine

5. The protein which binds free hemoglobin in plasma is :
 - (1) Albumin
 - (2) Haptoglobin
 - (3) Macroglobulin
 - (4) α 1-antitrypsin

6. Serum enzyme increased in muscular diseases :
 - (1) Aldolase
 - (2) Aspartate transaminase
 - (3) Creatinine phosphokinase
 - (4) All of these

7. Coenzyme that is not a vitamin derivative :
 - (1) PLP
 - (2) NAD
 - (3) SAM
 - (4) Lipoic Acid

8. The coenzyme not involved in hydrogen transfer :
 - (1) FMN
 - (2) FH_4
 - (3) FAD
 - (4) NAD



9. The enzyme containing porphyrin in structure :
- (1) Superoxide dismutase
 - (2) Glutathione reductase
 - (3) Catalase
 - (4) HMG COA reductase
10. Hemoglobin acts as a buffer because of presence of :
- (1) Glycine
 - (2) Protoporphyrin
 - (3) Iron
 - (4) Histidine
11. Example of monosaccharide absorbed at faster rate than glucose :
- (1) Fructose
 - (2) Mannose
 - (3) Galactose
 - (4) Xylose
12. Mitochondrial are involved in all except :
- (1) ATP production
 - (2) Apoptosis
 - (3) Ketogenesis
 - (4) Cholesterol biosynthesis
13. Which enzyme is not endopeptidase ?
- (1) Carboxypeptidase
 - (2) Chymotrypsin
 - (3) Elastase
 - (4) Pepsin
14. During meals the levels of which are raised ?
- (1) Glucagon
 - (2) Insulin
 - (3) Growth hormone
 - (4) Thyroxine
15. All metabolic disturbances are observed in diabetes except
- (1) Increased lipolysis
 - (2) Increased glycogenolysis
 - (3) Increased gluconeogenesis
 - (4) Increased uptake of amino acid
16. Copper containing cytochrome is
- (1) Cytochrome a
 - (2) Cytochrome P 450
 - (3) Cytochrome a₃
 - (4) Cytochrome C 1



17. Complexes of respiratory chain acts as a proton pump
- (1) I, II and III
 - (2) I, II and IV
 - (3) I, III and IV
 - (4) II, III and IV
18. Cyanide inhibits electron transport chain at the site containing :
- (1) Coenzyme Q
 - (2) Cytochromes
 - (3) Iron Sulphur proteins
 - (4) NAD⁺
19. ATP synthesis is powered by
- (1) Cytochromes
 - (2) c-AMP
 - (3) Proton Gradient
 - (4) GTP hydrolysis
20. Which compound is high energy phosphate ?
- (1) Glucose – I – Phosphate
 - (2) Glucose – 6 – Phosphate
 - (3) Fructose – 1 – Phosphate
 - (4) I, 3, biphosphoglycerate
21. Cytochrome P450 is an example of
- (1) Monooxygenases
 - (2) Dioxygenases
 - (3) Hydroperoxidases
 - (4) Dehydrogenases
22. Biological oxidation ensure :
- (1) Regulation of body temperature
 - (2) ATP Homeostasis
 - (3) Efficient uses of nutrients during fed and starvation state
 - (4) All of these
23. Products of Kreb's cycle essential for oxidative phosphorylation :
- (1) NADPH₂ and FADH₂
 - (2) NADPH₂ and ATP
 - (3) NADH+H and FADH+H
 - (4) FADH+H and ATP
24. Six carbon glucose enters in TCA cycle with how many molecules of two carbon acetyl CoA ?
- (1) 1
 - (2) 2
 - (3) 3
 - (4) 4



25. B complex vitamins required for smooth working of TCA cycle :
- (1) Vitamin B1, B2, B3 and Cyanocobalamin
 - (2) Vitamin B1, B2, B3 and Pyridoxine
 - (3) Vitamin B1, B2, B3 and Folic Acid
 - (4) Vitamin B1, B2, B3 and Lipoic Acid
26. Citrate synthase is inhibited by all except :
- (1) Acetyl CoA
 - (2) Succinyl CoA
 - (3) ATP
 - (4) ADP
27. The number of asymmetric carbon atoms present in glucose :
- (1) 3
 - (2) 4
 - (3) 5
 - (4) 2
28. Maltose can be formed by the hydrolysis of all except :
- (1) Starch
 - (2) Dextrin
 - (3) Cellulose
 - (4) Glycogen
29. An enzyme present in the liver and not in muscle tissue :
- (1) Hexokinase
 - (2) LDH
 - (3) Pyruvate dehydrogenase
 - (4) Glucose – 6 – Phosphate
30. Fluoride ions inhibits which enzyme of glycolysis :
- (1) Enolase
 - (2) Pyruvate Kinase
 - (3) Hexokinase
 - (4) Phosphofructokinase
31. By percentage the amount of glycerol is more in :
- (1) Liver
 - (2) Kidneys
 - (3) Muscles
 - (4) Adipose Tissue
32. Which glycolytic enzyme is used in gluconeogenesis ?
- (1) Glucokinase
 - (2) Pyruvate Kinase
 - (3) Aldolase
 - (4) Phosphofructokinase



33. Monosaccharides causes sequestering of phosphate in cell :
- (1) Glucose
 - (2) Fructose
 - (3) Galactose
 - (4) Mannose
34. Hyperglycemic effect of glucagon is due to which action ?
- (1) It stimulates glycogenesis
 - (2) It inhibits glycogenolysis
 - (3) It inhibits gluconeogenesis
 - (4) It stimulates gluconeogenesis
35. Compound decreases intestinal absorption of glucose :
- (1) Miglitol
 - (2) Sorbitol
 - (3) Dulcitol
 - (4) Manitol
36. Phospholipid possesses antigenic property :
- (1) Cephalin
 - (2) Cardiolipin
 - (3) Lecithin
 - (4) Plasmalogen
37. The apoprotein specific for LCAT is
- (1) Apo B-100
 - (2) Apo C
 - (3) Apo A-1
 - (4) Apo B-48
38. Compound inhibiting the action of gastric and pancreatic lipase :
- (1) Lip statin
 - (2) Atorvastatin
 - (3) Lovastatin
 - (4) Mevastatin
39. An eicosanoid acting as chemotactic agent :
- (1) Prostacyclin
 - (2) Lipoxin
 - (3) Leukotrienes
 - (4) Thromboxanes
40. Steapsin is alternate name of :
- (1) Lingual Lipase
 - (2) Gastric Lipase
 - (3) Pancreatic Lipase
 - (4) Cholesterol Esterase



41. Apoprotein acts as ligand for LDL receptor :
- (1) Apo B48
 - (2) Apo B100
 - (3) Apo GUI
 - (4) Apo E
42. Beta oxidation is inhibited by accumulation of
- (1) ADP
 - (2) NAD
 - (3) FAD
 - (4) ATP
43. Refsum's Diseases is due to defect in
- (1) Alpha oxidation
 - (2) Beta oxidation
 - (3) Omega oxidation
 - (4) Carnitine deficiency
44. Test used for detection of ketone bodies in urine :
- (1) Hay Sulphur Test
 - (2) Benedicts Test
 - (3) Rothera's Test
 - (4) Gmelin's Test
45. Gaucher's disease is due to deficiency of
- (1) Sphingomyelinase
 - (2) Glucocerebrosidase
 - (3) Galactosidase
 - (4) Lysosomal Lipase
46. Which of the following tissues cannot utilize ketone bodies ?
- (1) Kidneys
 - (2) Liver
 - (3) Brain
 - (4) Skeletal Muscles
47. Brown adipose tissue is characterized by all except :
- (1) High blood supply
 - (2) High oxygen consumption
 - (3) High ATP synthase activity
 - (4) High thermogenesis
48. Compound not synthesized from cholesterol :-
- (1) Bile acids
 - (2) Bile pigment
 - (3) Vitamin D
 - (4) Coprosterol



49. Lipids are characterized by all except :
- (1) Insoluble in polar solvent
 - (2) Energy rich organic molecules
 - (3) Either liquids or crystalline solids at room temperature
 - (4) Nonionic in nature
50. Colour reaction specific for arginine amino acid :
- (1) Sakaguchi Test
 - (2) Millon's Test
 - (3) Hopkin's cole Test
 - (4) Neumann's Test
51. Ammonia is transported from muscles to liver which form :
- (1) Free ammonia
 - (2) Glutamine
 - (3) Alanine
 - (4) Asparagine
52. Polyamines are synthesized from :
- (1) Arginine
 - (2) Lysine
 - (3) Valine
 - (4) Aspartic acid
53. Example of Amino acid which is untransaminable :
- (1) Aspartate
 - (2) Alanine
 - (3) Lysine
 - (4) Tyrosine
54. Trichorrhexis nodosa is observed in :-
- (1) Hyperammonemia Type-II
 - (2) Argininosuccinicaciduria
 - (3) Citrullinemia
 - (4) Hyperargininemia
55. Gama Amino Butyrate (GABA) is formed from :
- (1) Glycine
 - (2) Tyrosine
 - (3) Glutamate
 - (4) Histidine
56. Pellagra like sign and symptoms are seen in :
- (1) Hartnup disease
 - (2) Maple syrup urine disease
 - (3) Phenylketonuria
 - (4) Alkaptonuria



57. Minimum number of peptide bond needed to answer biuret test :
- (1) 1
 - (2) 2
 - (3) 3
 - (4) 4
58. Maple Syrup Urine disease is due to deranged metabolism of :
- (1) Sulphur containing amino acid
 - (2) Branched chain amino acid
 - (3) Phenylalanine and Tyrosine
 - (4) Heterocyclic amino acid
59. Which of the following is wrongly matched ?
- (1) Tyrosine – Melanin
 - (2) Glycine – Glutathione
 - (3) Arginine – NO
 - (4) Lysine – Serotonin
60. Methaemoglobinemia can be caused by all except :
- (1) Deficiency of methaemoglobin reductase
 - (2) G-6-PD deficiency
 - (3) Industrial chemicals
 - (4) High consumption of antioxidant
61. Haemoproteins are characterised by :
- (1) Tri-pyrrole ring structure
 - (2) Non-Coloured Compounds
 - (3) Conjugated double bond
 - (4) All of these
62. Enzyme coproporphyrinogen III oxidase requires which coenzyme ?
- (1) FAD
 - (2) NAD
 - (3) Lipoic Acid
 - (4) PLP
63. Delta ALA Synthase is induced by :
- (1) Heme
 - (2) Iron
 - (3) Hematin
 - (4) Glucose
64. Example of erythropoietic porphyria :
- (1) Acute intermitted porphyria
 - (2) Porphyria cutanea tarda
 - (3) Variegate porphyria
 - (4) Protoporphyrin



65. Conjugated hyperbilirubinemia is seen in :
- (1) Hemolytic Anemia
 - (2) Gilbert's Syndrome
 - (3) Dubin-Johnson Syndrome
 - (4) Crigler-Najjar Syndrome
66. Guanine and cytosine in DNA are held together by :
- (1) 2 Hydrogen Bonds
 - (2) 3 Hydrogen Bonds
 - (3) 2 Covalent Bonds
 - (4) 3 Covalent Bonds
67. PRPP Synthase enzyme activity is feedback inhibited by :
- (1) AMP
 - (2) GMP
 - (3) GDP
 - (4) All of these
68. Allopurinol is used to treat Gout because :
- (1) It helps to catabolize uric acid
 - (2) It increase excretion of uric acid in urine
 - (3) It inhibits formation of uric acid
 - (4) It convert uric acid to urea
69. End product of Guanine is :
- (1) Uric Acid
 - (2) Urea
 - (3) β -alanine
 - (4) β -aminoisobutyrate
70. Drug that can precipitate Orotic aciduria :
- (1) Allopurinol
 - (2) Colchisin
 - (3) NSAID
 - (4) Paracetamol
71. Nutrient which is non-calorigenic in nature :
- (1) Carbohydrates
 - (2) Lipids
 - (3) Vitamins
 - (4) Proteins
72. Basal Metabolic Rate is expressed in units :
- (1) Kcal/sqm/hour
 - (2) Kcal/m/hour
 - (3) Kcal/m³/day
 - (4) Kcal/kg/hour



73. All are beneficial effects of dietary fibers except :

- (1) Decreases cholesterol levels
- (2) Prevents from colon cancer
- (3) Decreases absorption of minerals
- (4) Promotes peristalsis movement

74. The normal range of plasma osmolality is :

- (1) 265-280 mosm/kg
- (2) 280-295 mosm/kg
- (3) 295-310 mosm/kg
- (4) 310-325 mosm/kg

75. Diabetes insipidus causes :

- (1) Hypertonic contraction
- (2) Hypotonic contraction
- (3) Isotonic contraction
- (4) None of these

76. Copper deficiency affects the formation of collagen by reducing activity of :

- (1) Prolyl Hydroxylase
- (2) Collagenase
- (3) Lysyl Hydroxylase
- (4) Ferroxidase II

77. Salivary protein Gusten contains :

- (1) Selenium
- (2) Zinc
- (3) Chromium
- (4) Cobalt

78. B complex vitamin having hypolipidemic role :

- (1) Thymine
- (2) Pyridoxine
- (3) Niacin
- (4) Pantothenic acid

79. In Rhodopsin vitamin A is presented as :

- (1) 11-cis retinol
- (2) 11-cis retinal
- (3) All trans retinol
- (4) All trans retinal

80. Thiamine level is monitored by :

- (1) G-6-PD activity
- (2) Transaldolase activity
- (3) Transketolase activity
- (4) FIGLU excretion in urine



81. RDA of vitamin C in normal adults is :
- (1) 10-20 mg
 - (2) 20-30 mg
 - (3) 60-70 mg
 - (4) 90-100 mg
82. Deficiency of which vitamin causes homocysteinuria, achlorhydria and methyl malonic aciduria ?
- (1) Vitamin B6
 - (2) Vitamin C
 - (3) Vitamin E
 - (4) Vitamin B12
83. Catecholamines are derived from :
- (1) Cholesterol
 - (2) Tryptophan
 - (3) Tyrosine
 - (4) β -carotene
84. Calcitriol regulates plasma level of calcium and phosphate by acting at :
- (1) Intestine, muscle and bone
 - (2) Bone, intestine and liver
 - (3) Bone, intestine and thyroid gland
 - (4) Bone, intestine and kidneys
85. Hormone not secreted by anterior pituitary :
- (1) Growth hormone
 - (2) Prolactin
 - (3) Progesterone
 - (4) LH
86. Enzyme Phosphodiesterase inactivates cAMP to
- (1) ATP
 - (2) 3'AMP
 - (3) 5'AMP
 - (4) ADP
87. Find the mis-matched pair.
- (1) Pancreas : Somatostatin
 - (2) Thyroid gland : Calcitonin
 - (3) Adrenal medulla : Cortisol
 - (4) Posterior pituitary : Vasopressin
88. Hormone exclusively secreted by adipose tissue
- (1) Adiponectin
 - (2) Ghrelin
 - (3) PYY3-36
 - (4) Glucagon
89. Hormone having protective role against breast cancer in woman
- (1) Estrogen
 - (2) Progesterone
 - (3) β -HCG
 - (4) LH



90. Hormone that inhibit hunger

- (1) Leptin
- (2) Insulin
- (3) Glucagon
- (4) PYY-36

91. Which hormone is also called somatotropin?

- (1) Prolactin
- (2) Oxytocin
- (3) Growth hormone
- (4) Thyroxine

92. Hormone that uses cyclic GMP as second messenger :

- (1) Insulin
- (2) Growth hormone
- (3) Atrial natriuretic factor
- (4) Prolactin

93. Chemical name of Thymine is :

- (1) 2 amino 6 Oxo purine
- (2) 2, Oxo, 4 amino pyrimidine
- (3) 2, 4, dioxy 5 methyl pyrimidine
- (4) 2, 4 dioxypyrimidene

94. Nucleotides are involved in which function ?

- (1) Structural component of coenzymes
- (2) As second messengers
- (3) In signal transduction
- (4) All of these

95. Chargaff's rule suggests

- (1) Number of Adenine = Number of Thymine
- (2) Number of Guanine = Number of Cytosine
- (3) Number of Purines = Number of Pyrimidines
- (4) All of these

96. Each turn of B-DNA has :

- (1) 8 pairs of nucleotides
- (2) 9 pairs of nucleotides
- (3) 10 pairs of nucleotides
- (4) 12 pairs of nucleotides

97. Secondary Gout is observed in

- (1) Lesch - Nyhan syndrome
- (2) Von - Gierke's disease
- (3) Psoriasis
- (4) All of these



98. Amino acid involved in purine, pyrimidine and urea synthesis :

- (1) Aspartate
- (2) Arginine
- (3) Glycine
- (4) Histidine

99. Okazaki fragments are used for :

- (1) Protein synthesis
- (2) RNA synthesis
- (3) DNA synthesis
- (4) PCR analysis

100. Plasmids have :

- (1) Linear single stranded DNA molecules
- (2) Linear double stranded DNA molecules
- (3) Circular duplex DNA molecule
- (4) None of these

101. Replication of mitochondrial DNA is done by :

- (1) DNA pol α
- (2) DNA pol β
- (3) DNA pol δ
- (4) DNA pol γ

102. Discontinuous okazaki fragments of lagging strand are joined by :

- (1) DNA gyrase
- (2) DNA polymerase
- (3) DNA ligase
- (4) DNA replicase

103. Chemical nature of Telomerase is :

- (1) DNA dependent DNA polymerase
- (2) RNA dependent RNA polymerase
- (3) RNA dependent DNA polymerase
- (4) DNA dependent RNA polymerase

104. Polymerase used for PCR is extracted from :

- (1) Homo sapiens
- (2) *Thermus aquaticus*
- (3) *E. coli*
- (4) *S. Cerevisiae*

105. How many DNA duplexes are obtained from one DNA duplex after 4 cycles of PCR ?

- (1) 64
- (2) 8
- (3) 16
- (4) 32



106. Sigma factor is a component of :

- (1) DNA ligase
- (2) DNA polymerase
- (3) Endonuclease
- (4) RNA polymerase

107. One end of t-RNA matches genetic code in three Nucleotide sequences is known as

- (1) Codon
- (2) Anticodon
- (3) Acceptor arm
- (4) Blunt end

108. What is the process of binding of primer to the denatured strand called ?

- (1) Annealing
- (2) Renaturation
- (3) Denaturation
- (4) None of these

109. *Thermus aquaticus* is the source of

- (1) Vent polymerase
- (2) Primase
- (3) Taq polymerase
- (4) Restriction endonuclease

110. In prokaryotic and eukaryotic cells the synthesis of protein chains is initiated with

- (1) Arginine
- (2) Methionine
- (3) Serine
- (4) Valine

111. Proof reading function during replication is done by :

- (1) DNA polymerase III
- (2) DNA ligase
- (3) DNA topoisomerase
- (4) DNA helicase

112. Fidelity of translations depends upon :

- (1) DNA polymerase
- (2) RNA polymerase
- (3) Peptidyl transferase
- (4) Aminoacyl tRNA synthetase

113. In Prokaryotes RNA Polymerase catalyzes the synthesis of :

- (1) mRNA
- (2) tRNA
- (3) rRNA
- (4) All of these



114. CAAT box is present in :

- (1) Prokaryotic promoters upstream of TATA box
- (2) Prokaryotic promoters are downstream of TATA box
- (3) Eukaryotic promoters upstream of TATA box
- (4) Eukaryotic promoters are downstream of TATA box

115. All are true about transcription process except :

- (1) It is synthesis of all types of RNA.
- (2) Only one strand of DNA takes part in RNA synthesis.
- (3) It occurs in 3' to 5' direction.
- (4) It is catalyzed by RNA dependent RNA polymerase.

116. The process of transcription is terminated by :

- (1) Sigma factor
- (2) Palindromes
- (3) TATA Box
- (4) None of these

117. Mature mRNA undergoes post transcriptional changes :

- (1) Capping of TMGTP
- (2) Poly A Tail
- (3) Splicing
- (4) All of these

118. Which enzyme contain r-RNA ?

- (1) Ribonuclease
- (2) Reverse transcriptase
- (3) Peptidyl transferase
- (4) Histone acetyl transferase

119. All are inhibitors of transcriptions except :

- (1) Rifampicin
- (2) α -Amanitin
- (3) Heparin
- (4) Diphtheria toxin

120. Synthesis of apoprotein B-48 by intestinal cells is an example of

- (1) mRNA editing
- (2) Ribozyme activity
- (3) Splicing
- (4) All of these

121. Enzyme used to prepare complementary DNA from mRNA

- (1) Ribozyme
- (2) Reverse transcriptase
- (3) Peptidyl transferase
- (4) Restriction endonuclease

□

122. During translation the role of enzyme peptidyl transferase is :
- (1) Transfer of phosphate group
 - (2) Amino acid activation
 - (3) Peptide bond formation between adjacent amino acids
 - (4) Binding of ribosome submits to mRNA
123. In prokaryotes the ribosomal binding site on mRNA is called
- (1) Hogness sequences
 - (2) Shine Dalgarno sequences
 - (3) Pribnow sequences
 - (4) TATA box
124. One Gene One Enzyme hypothesis was proposed by :
- (1) Harshey and Chase
 - (2) Morgan and Sturtevant
 - (3) Beadle and Tatum
 - (4) Garrod and Morgan
125. Which of the following can be a source of stem cell ?
- (1) Blood
 - (2) Serum
 - (3) Any part of the body
 - (4) Bone marrow and umbilical cord blood

126. The human genome project led to the development of :
- (1) Bioinformatics
 - (2) Biosystematics
 - (3) Biotechnology
 - (4) Biomonitoring
127. How many total number of chromosomes found in Down's syndrome ?
- (1) 45
 - (2) 46
 - (3) 47
 - (4) 48
128. Kinetochore is located on :
- (1) Centromere
 - (2) Telomere
 - (3) DNA
 - (4) Chromatids
129. Longest phase of cell cycle is :
- (1) S Phase
 - (2) G1 Phase
 - (3) G2 Phase
 - (4) G3 Phase



130. The structural genes of lac operon synthesis how many enzymes ?

- (1) One
- (2) Two
- (3) Three
- (4) Four

131. Technique use for the identification of RNA :

- (1) Southern blotting
- (2) Northern blotting
- (3) Western blotting
- (4) Eastern blotting

132. Minisatellites are name for :

- (1) RFLP
- (2) VNTR
- (3) SNP
- (4) STR

133. Cause of sickle cell anemia is

- (1) Single nucleotide mutation
- (2) Frameshift mutation
- (3) Non-Sense mutation
- (4) Post transcriptional mutation

134. Energy rich molecule required for initiation of translation :

- (1) ATP
- (2) GTP
- (3) CTP
- (4) UTP

135. Which of the following is the most commonly used probes for protein detection ?

- (1) Antigen
- (2) Antibody
- (3) Interferons
- (4) Interleukins

136. Genetic immunization involves the administration of :

- (1) Antigen
- (2) Antibody
- (3) DNA
- (4) RNA

137. Jumping genes are also called :

- (1) Introns
- (2) Exons
- (3) Cistron
- (4) Transposons

138. Essential pentosuria is due to deficiency of enzyme

- (1) Galactokinase
- (2) Xylitol dehydrogenase
- (3) Ribose-5-phosphatase
- (4) Gulonolactone oxidase



139. Albinism is due to defect in enzyme

- (1) Phenylalanine hydroxylase
- (2) Homogentisate oxidase
- (3) Tyrosinase
- (4) Tyrosine transaminase

140. True about Lesch Nyhan syndrome

- (1) Deficiency of enzyme adenine phosphoribosyl transferase
- (2) It affects only males
- (3) Hypouricemia
- (4) Anemia is observed

141. Disease due to gangliosidosis :

- (1) Niemann-Pick disease
- (2) Gaucher's disease
- (3) Tay-Sachs disease
- (4) Farber's disease

142. Following techniques can be employed for prenatal diagnosis

- (1) Polymerase chain reaction
- (2) Amniocentesis
- (3) Ultrasonography
- (4) All of these

143. Biphasic Van den Bergh reaction is observed in

- (1) Hemolytic jaundice
- (2) Obstructive jaundice
- (3) Hepatic jaundice
- (4) All of these

144. Enzyme elevated in alcoholic liver disease :

- (1) AST
- (2) ALT
- (3) GOT
- (4) ALP

145. Detoxification function of liver is assessed by which test ?

- (1) Hippuric acid excretion test
- (2) Pentagastrin stimulation test
- (3) Galactose tolerance test
- (4) Prothrombin test

146. Normal level of BUN is

- (1) 15 – 40 mg/dL
- (2) 1.5 – 2.5 mg/dL
- (3) 0.8 – 1.2 mg/dL
- (4) 6 – 20 mg/dL



147. Clearance is calculated by using formula

- (1) $C = U \times V \div P$
- (2) $C = U \times P \div V$
- (3) $C = V \times P \div U$
- (4) $C = U \times P \div V \times 10$

148. Test for detection of proteins in urine is

- (1) Heat coagulation test
- (2) Benedict test
- (3) Barfoed test
- (4) Benzidine test

149. Serum enzymes elevated pancreatic disorders :

- (1) AST and ALT
- (2) CPK and GGT
- (3) Amylase and Lipase
- (4) ALP and LDH

150. Thyroid hormones are produce from

- (1) Tyrosine and iodine
- (2) Tryptophan and iodine
- (3) Threonine and iodine
- (4) Tocopherol and iodine

151. Hypofunctioning of adrenal gland leads to :

- (1) Cushing syndrome
- (2) Addison's disease
- (3) Cystic fibrosis
- (4) Zollinger-Ellison syndrome

152. Which is the single best enzyme for diagnosis acute pancreatitis ?

- (1) Serum amylase
- (2) Serum lipase
- (3) Serum GGT
- (4) Serum trypsinogen

153. Most predominant immunoglobulin in the colostrum :

- (1) IgA
- (2) IgD
- (3) IgE
- (4) IgG

154. Which of the following antibodies are involved in complement activation ?

- (1) IgG and IgM
- (2) IgA and IgD
- (3) IgM and IgE
- (4) IgM and IgD

155. Genes for lambda light chain are present on :

- (1) Chromosome 2
- (2) Chromosome 7
- (3) Chromosome 14
- (4) Chromosome 22

156. After an antigen introduction in the body the first immunoglobulin formed is :

- (1) IgA
- (2) IgD
- (3) IgG
- (4) IgM

157. British anti-Lewisite (BAL) is used an antidote for :

- (1) Alcohol poisoning
- (2) Snake poisoning
- (3) Arsenic poisoning
- (4) Cyanide poisoning

158. Pesticide organophosphate in nature

- (1) DDT
- (2) Aldrin
- (3) Endrin
- (4) Malathion

159. Itai-itai disease is due to toxicity of :

- (1) Arsenic
- (2) Cadmium
- (3) Mercury
- (4) Lead

160. Biological oxygen demand (BOD) is a useful parameter to study :

- (1) Air pollution
- (2) Soil pollution
- (3) Water pollution
- (4) Noise pollution

161. Highly potent ionizing radioactive decay is :

- (1) Alpha decay
- (2) Beta decay
- (3) Gamma decay
- (4) X rays

162. Radioisotopes are used in which technique ?

- (1) Radioimmunoassay
- (2) Autoradiography
- (3) Immunoradiometric assay
- (4) All of these

163. Tumour marker used for the diagnosis of Germ cell tumour :

- (1) Alpha-fetoprotein
- (2) CEA
- (3) PSA
- (4) Catecholamine



164. P-53 is an example of

- (1) Oncogene
- (2) Antioncogene
- (3) Protooncogene
- (4) Tumour marker

165. The ultimate critical macromolecule in carcinogenesis

- (1) RNA
- (2) DNA
- (3) Protein
- (4) Immunoglobulin

166. The membrane of Human immunodeficiency virus has surface antigen as :

- (1) Glycoproteins gp42 and gp 120
- (2) Reverse transcriptase p66
- (3) Endonuclease P32
- (4) Protein 24

167. Which enzyme protects DNA from aging ?

- (1) DNA polymerase
- (2) Topoisomerase
- (3) Telomerase
- (4) Deoxyribonuclease

168. Hydrogen peroxide produced by superoxide dismutase can be catabolised by :

- (1) Catalase
- (2) Glutathione peroxidase
- (3) Both Catalase and Glutathione peroxidase
- (4) Only by catalase

169. Alpha tocopherol acts as a :

- (1) Plasma antioxidant
- (2) Cell membrane antioxidant
- (3) Intracellular antioxidant
- (4) Metabolic antioxidant

170. The ratio of base to acid for phosphate buffer is :

- (1) 20 : 1
- (2) 4 : 1
- (3) 6 : 1
- (4) 8 : 1

171. Acidosis is observed in all except :

- (1) Phenylketonuria
- (2) Von Gierkes disease
- (3) Diabetes mellitus
- (4) Maple syrup urine disease

172. Hypoalbuminemia is associated with :

- (1) Normal anion gap
- (2) Decreased anion gap
- (3) Increased anion gap
- (4) Zero anion gap



173. Formula for calculating Density of a substance is

- (1) $\text{Density} = \text{Mass} \div \text{Volume}$
- (2) $\text{Density} = \text{Mass} \times \text{Volume}$
- (3) $\text{Density} = \text{Mass} \div \text{Volume} \times 100$
- (4) $\text{Density} = \text{Mass} \times \text{Volume} \div 100$

174. Anticoagulant that does not work by chelating ionized calcium :

- (1) EDTA
- (2) Sodium citrate
- (3) Heparin
- (4) Ammonium Oxalate

175. What is normal range of serum total Calcium ?

- (1) 5-5.5 mg/dL
- (2) 9-11 mg/dL
- (3) 3-5 mg/dL
- (4) 7-9 mg/dL

176. What is the correct concentration of alcohol used for skin cleansing during phlebotomy ?

- (1) 50%
- (2) 70%
- (3) 90%
- (4) 95%

177. Technique used to analyze or separate a mixture of compounds that are volatile or can be made volatile.

- (1) Affinity chromatography
- (2) Ion exchange chromatography
- (3) Gas liquid chromatography
- (4) Gel Filtration

178. Advantage of Immunoradiometric assay (IRMA) over Radioimmunoassay

- (1) Uses radiolabeled antibodies
- (2) Provides higher sensitivity than RIIA
- (3) Uses non-equilibrium Condition
- (4) All of these

179. What is the colour coding of the bag used in hospitals to dispose of human anatomical wastes such as body parts ?

- (1) Yellow
- (2) Red
- (3) Black
- (4) Blue

180. Coefficient of variation (CV%) is expressed as :

- (1) $\text{CV}\% = \text{SD}/\text{Mean} \times 10$
- (2) $\text{CV}\% = \text{SD} / \text{Mean} \times 100$
- (3) $\text{CV}\% = \text{SD} \times \text{Mean} \times 10$
- (4) $\text{CV}\% = \text{SD} \times \text{Mean} \times 100$



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