

Grassroots Academy New Delhi

NET JRF TEST 4

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Contact Number: 9350232207, 9891602060

TEST-4

Proteins-structure, classification & properties, Carbohydrates, Fat metabolism, Nitrogen metabolism, Vitamins.

1. The chief constituent of Olive oil is
 - (a) Linoleic acid
 - (b) Stearic acid
 - (c) Oleic acid
 - (d) Palmitic acid

2. Which of the following are aromatic amino acid?
 - a) Proline
 - b) Phenylalanine
 - c) Alanine
 - d) Valine

3. Lysine is a
 - (a) Neutral amino acid
 - (b) basic amino acid
 - (c) acidic amino acid
 - (d) none of these

4. Who built the first atomic model of Myoglobin?
 - (a) Kuhne
 - (b) Kendrew & Perutz
 - (c) Fred Sanger
 - (d) Har Govind Khorana

5. The term vitamin has been derived from
 - (a) Vital acid
 - (b) Vital amine
 - (c) Vital amide
 - (d) Vital aldehyde

6. The active form of Vitamin B1 is
 - (a) Thiotic acid
 - (b) Thiamine
 - (c) Thiamine Pyrophosphate
 - (d) Riboflavin

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7. Strachyose is a
- (a) Trisaccharide
 - (b) Monosaccharide
 - (c) Disaccharide
 - (d) Tetrasaccharides
8. Alpha Helix has _____ amino acids per turn of the helix
- (a) 3.6
 - (b) 3.4
 - (c) 3.5
 - (d) 3.7
9. Agar is a
- (a) Diasaccharide
 - (b) Homopolysaccharide
 - (c) Heteropolysaccharide
 - (d) Monosaccharide
10. The main circulating form of vitamin D in animals is
- (a) D3
 - (b) D1
 - (c) D2
 - (d) d4
11. Following does not produce osazone crystals
- (a) Sucrose
 - (b) Maltose
 - (c) Lactose
 - (d) None
12. The enzyme nitrate reductase was first isolated by
- (a) Kuhne
 - (b) Sachs & Bhor
 - (c) Strasburger & Bose
 - (d) Evans & Nason
13. The conversion of nitrate to ammonia in some nitrifying bacteria is
- (a) Both
 - (b) Oxidative process
 - (c) Reductive process
 - (d) none

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14. Oligosaccharides contain ____ monosaccharides
- (a) 6-8
 - (b) 2-4
 - (c) 4-6
 - (d) 2-10
15. Monosaccharides on treatment with mild oxidising agent produces
- (a) Uronic acid
 - (b) Aldonic acid
 - (c) Ketonic acid
 - (d) Saccharic acid
16. Sugar + Dilute alkaline solution @ 37oC temperature yields
- (a) Aldehydes
 - (b) Esters
 - (c) Enediols
 - (d) Hydroxyl groups
17. Why glucose is given to an energy deficient person?
- (a) Quickly absorbed
 - (b) Simplest of all sugars
 - (c) Easily hydrolysable
 - (d) All
18. Hydrolysis of fats by alkalies into fatty acids & glycerol is called
- (a) Suspension
 - (b) Coagulation
 - (c) Colloidal
 - (d) Saponification
19. Proteins can be denatured by
- (a) CO₂
 - (b) Heat
 - (c) water
 - (d) O₂
20. The term "Vitamin" is given by
- (a) Hans Krebs
 - (b) Funk
 - (c) Magendie

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(d) Eijkman

21. Trhalose is present in

- (a) Ocimum sanctum
- (b) Young Mushroom
- (c) Roots of Datura
- (d) Ginger officinalis

22. The hydrolysis of fats is accelerated by the presence of which of the following ions

- (a) Na⁺
- (b) Mg⁺⁺
- (c) Ca⁺⁺
- (d) Fe⁺⁺

23. What is the role of Mg²⁺ in the first step of Beta oxidation?

- (a) Activating Thiokinase
- (b) Chelation of negative charges present on ATP molecule
- (c) Chelation of negative charges on any other cofactor
- (d) Lowering activation energy of the reaction

24. Which amino acid causes twist & turns in protein structure?

- (a) Proline
- (b) Valine
- (c) Isoleucine
- (d) Glycine

25. Tripeptides contain

- (a) 3 amino acids
- (b) 1 amino acid
- (c) 2 amino acids
- (d) 4 amino acids

26. Amino Acids are amphoteric in nature, because

- (a) They show basic properties
- (b) They show ring structure
- (c) They show acidic properties
- (d) none

27. Which of the following proteins are present in egg?

- (a) both
- (b) Albumin

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- (c) Vitellin
- (d) none

28. Why do carbohydrates dissolve in water?

- (a) it is non-polar
- (b) It makes H-bonding with water
- (c) Because water is universal solvent
- (d) none

29. Sucrose is

- (a) Both
- (b) Aldehyde
- (c) ketone
- (d) None

30. Collagen is a

- (a) Lipoprotein
- (b) Fibrous Protein
- (c) Globular Protein
- (d) Glycoprotein

31. Which of the following is not a simple protein?

- (a) Prolamins
- (b) Albumins
- (c) Globulins
- (d) Glycoproteins

32. Most of the fatty acids in cells contain

- (a) 20 to 22 C-atoms per molecule
- (b) 16 to 18 C-atoms per molecule
- (c) 18 to 20 C-atoms per molecule
- (d) 22 to 24 C-atoms per molecule

33. Starch contains

- (a) Both
- (b) Amylose
- (c) Amylopectin
- (d) None

34. Hemoglobin is a

- (a) Tertiary Protein

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- (b) Primary Protein
- (c) Secondary Protein
- (d) Quaternary Protein

35. Each turn of Beta oxidation generates

- (a) 1 Acetyl CoA
- (b) 1 FADH₂
- (c) 1 NADH+H⁺
- (d) All

36. The structure of protein comprises of

- (a) Disulphide bonds
- (b) H-bonds
- (c) Hydrophobic bonds
- (d) All

37. Which of the following is an uncharged derivative of aspartic acid?

- (a) Alanine
- (b) Arginine
- (c) Asparagine
- (d) None

38. Hemoglobin & Myoglobin are

- (a) Tertiary protein
- (b) Primary Protein
- (c) Secondary & Tertiary protein respectively
- (d) Quaternary & Tertiary Protein respectively

39. All acidic amino acids are

- (a) Neutral
- (b) Positively charged
- (c) negatively charged
- (d) Amphoteric

40. One molecule of palmitic acid with 16 C atoms on complete oxidation will produce how many ATP molecules?

- (a) 128
- (b) 126
- (c) 127
- (d) 129

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41. Fats on oxidation yields
- (a) Equal Kcal as that of carbohydrates
 - (b) More Kcal Than carbohydrates
 - (c) Less Kcal than carbohydrates
 - (d) None
42. Pyridoxine is involved in the synthesis of
- (a) Riboflavin
 - (b) Thiamine
 - (c) Niacin
 - (d) Ascorbic acid
43. Carbohydrates are
- (a) both
 - (b) Polyhydroxy derivatives of aldehydes
 - (c) polyhydroxy derivatives of ketones
 - (d) none
44. Which Saccharide is present in the bulbs of onion & garlic?
- (a) Stachyose
 - (b) Rabinose
 - (c) Raffinose
 - (d) Scordose
45. Starch, inulin & glycogen are examples of
- (a) Oligosaccharides
 - (b) Storage polysaccharides
 - (c) Structural polysaccharides
 - (d) Monosaccharides
46. The 3rd step of Beta Oxidation is
- (a) All
 - (b) Reversible
 - (c) Irreversible
 - (d) None
47. Which of the following is/are unsaturated fatty acid/acids
- (a) Palmitooleic acid
 - (b) Linoleic acid
 - (c) oleic acid
 - (d) All of the above

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48. Which of the following codons does not select any amino acid?

- (a) UGA
- (b) UAA
- (c) UAG
- (d) All

49. Which Vitamin is designated as pure anti anaemia factor?

- (a) B6
- (b) B4
- (c) B12
- (d) K

50. Molish reagent is

- (a) 5% alpha naphthol in alcohol
- (b) 2% alpha naphthol in alcohol
- (c) 3% alpha naphthol in alcohol
- (d) 4% alpha naphthol in alcohol

51. The hydrolysis of fats is accelerated by

- (a) Cu^+
- (b) Fe^{2+}
- (c) Ca^{2+}
- (d) Co

52. The deficiency of which vitamin causes megaloblastic anemia

- (a) B4
- (b) B1
- (c) Folic acid
- (d) None

53. All the following can act as chemical agent for denaturation of protein except

- (a) Urea
- (b) Guanidine
- (c) Ethanol
- (d) Amylase

54. Why monosaccharides cannot be hydrolysed?

- (a) Both
- (b) Has one Saccharide molecule
- (c) Is electrically neutral

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(d) None

55. Which of the following statement about Vitamin-A is correct?

- (a) Its chemical formula is C_4H_56
- (b) It is a yellow viscous oil
- (c) It is also called "Retinol"
- (d) All

56. Keratin is a structural protein of

- (a) Nail
- (b) Hair
- (c) Wool
- (d) All

57. Which Vitamin constitutes NAD^+ ?

- (a) B5
- (b) B4
- (c) B12
- (d) C

58. Animals always contain

- (a) Meso form
- (b) D-amino acid
- (c) L-amino acid
- (d) All

59. Tocopherol exists in

- (a) 4 forms
- (b) 2 forms
- (c) 3 forms
- (d) 5 forms

60. Reduction of nitrate to ammonia takes place in the presence of enzymes

- (a) Hexokinase
- (b) Nitrate reductase
- (c) Nitrite reductase
- (d) Transadolase

61. Which protein units constitute flagella?

- (a) Murein
- (b) Capsomeres

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- (c) Flagellin
- (d) None

62. During denaturation of protein, disruption of all of the following takes place except

- (a) tertiary
- (b) Primary
- (c) secondary
- (d) quaternary

63. Who introduced the term "Protein"?

- (a) Stein
- (b) Sanger
- (c) Mulder
- (d) None

(e) 64. Vitamins are synthesized by

- (a) non green plants
- (b) animals
- (c) green plants
- (d) bryophytes

65. Beta oxidation takes place in

- (a) None of the above
- (b) Mitochondria
- (c) Glyoxysomes
- (d) All of the above

66. Vitellin is a

- (a) Glycoprotein
- (b) Phosphoprotein
- (c) Metalloprotein
- (d) Flavoprotein

67. Glycoproteins has _____ as prosthetic group

- (a) Carbohydrates
- (b) Metals
- (c) Pigment
- (d) NAD

68. Fats are polymers containing

- (a) Both Fatty acids & Glycerol
- (b) Only Fatty acids

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- (c) Only Glycerol
- (d) None

69. Which is the most abundant carbohydrate in nature?

- (a) Glycogen
- (b) Starch
- (c) cellulose
- (d) Chitin

70. Waxes are esters of fatty acids &

- (a) Phosphoric acid
- (b) Glycerol
- (c) Alcohol
- (d) Nitrogenous compounds

71. Biuret reagent is used to test

- (a) Vitamins
- (b) Carbohydrate
- (c) Fats
- (d) Proteins

72. Fat soluble vitamins are stored in _____ while water soluble are stored as _____

- (a) Liver, kidney
- (b) Skin, GIT
- (c) Liver, Coenzymes
- (d) Endocrine glands

73. Glycine & Valine are examples of

- (a) Heterocyclic amino acids
- (b) Aliphatic amino acids
- (c) Aromatic amino acids
- (d) none

74. Proteins are made up of

- (a) Lipids
- (b) Amino Acids
- (c) Monosaccharides
- (d) Vitamins

75. The hemiacetal bond formation creates a new asymmetric centre at

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- (a) C2 in ketose sugar
- (b) C1 in ketose sugar
- (c) C1 in aldose sugar
- (d) C1 in aldose sugar & C2 in ketose sugar

76. _____ are the building blocks of our body

- (a) Proteins
- (b) Carbohydrates
- (c) Fats
- (d) Minerals

77. Pentoses has the following empirical formula

- (a) C₅H₁₀O₅
- (b) C₃H₆O₃
- (c) C₄H₈O₄
- (d) C₆H₁₂O₆

78. Brain glycolipids contain

- (a) D-galactose
- (b) D-glucose
- (c) D-xylulose
- (d) D-fructose

79. Which of the following is not a ketose?

- (a) Ribulose
- (b) Glyceraldehyde
- (c) Xylulose
- (d) Fructose

80. The sequence of 3 nucleotides in polynucleotide chains of the DNA molecule is called

- (a) Chain termination
- (b) Non sense codon
- (c) Triplet code
- (d) Genetic code

81. Triglycerides are

- (a) Both
- (b) Non polar
- (c) Polar
- (d) All

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82. Vitamin-A is

- (a) Both
- (b) Fat Soluble
- (c) Water soluble
- (d) None

83. Fats on hydrolysis in presence of enzyme 'lipase' yield glycerol & fatty acids

- (a) In 3 steps
- (b) Directly
- (c) In 2 steps
- (d) In 4 steps

84. Cellulose can be degraded by

- (a) Protease
- (b) Amylase
- (c) Cellulase
- (d) Pepsin

85. Good plant sources of choline are

- (a) Green Leaves
- (b) Yeast
- (c) Mushroom
- (d) Cereal grains

86. Sugar alcohols of commercial importance are

- (a) fructose
- (b) Sorbitol
- (c) Sucrose
- (d) Starch

87. Insulin is a protein of

- (a) 41 amino acids
- (b) 21 amino acid
- (c) 31 amino acids
- (d) 51 amino acids

88. Aspartic acid + Pyruvic acid -----> OAA + Alpha-alanine. The following reaction is catalysed by enzyme Transaminase & coenzyme

- (a) Pyridoxamine phosphate
- (b) Pyrodoxine

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- (c) Pyridoxal phosphate
- (d) Pyrimidine

89. The sources of Vitamin-C are

- (a) Pepper
- (b) Green Vegetables
- (c) Citrus fruits
- (d) all

90. Acyl CoA Dehydrogenase contains _____ as cofactor

- (a) FAD
- (b) NAD
- (c) NADP
- (d) Lipoate

91. Why methionine does not form disulfide bond while cysteine does?

- (a) Because it do not contain terminal -SH group
- (b) Because it do not contain Sulphur
- (c) Because it forms H-bonding with water
- (d) Because it is a Hydrophilic amino acid

92. The example of living fibrous protein among the following

- (a) Collagen
- (b) Hemoglobin
- (c) Myoglobin
- (d) albumin

93. Nitrate reductase contains

- (a) Zinc
- (b) Molybdenum
- (c) Iron
- (d) Copper

94. 90% of our food constitutes of

- (a) Proteins
- (b) Carbohydrates
- (c) Fats
- (d) Carbohydrates & proteins

95. Which nutrient is called as "Indispensable accessory food factors"?

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- (a) Vitamins
- (b) Proteins
- (c) Carbohydrates
- (d) Fats

96. Heparin contains

- (a) N-sulfo-D-glucosamine
- (b) D-glucuronic acid
- (c) L-iduronic acid
- (d) All

97. Peptide & glycosidic linkages are found in

- (a) Carbohydrates & proteins respectively
- (b) Proteins & fats respectively
- (c) Proteins & carbohydrates respectively
- (d) Carbohydrates & Fats respectively

98. Monosaccharides on treatment with strong mineral acid results in

- (a) Furfural
- (b) alcohol
- (c) Ester
- (d) None

99. Who coined the term "enzyme"?

- (a) Altman
- (b) Kuhne
- (c) Sumner
- (d) Strasburger

100. Vitamin H is also known as

- (a) Biotin
- (b) Tocopherol
- (c) Phylloquinone
- (d) Niacin