

Subject: bio202
(objective notes)

CR:

Biotech Pak Iqbal

VU Medical Zone

(biotechnologists)

Admins:

**Hafiza Mubeen, Muhammad
Nouman, Tasha Khan, Iqra
Shaheen**

Bio202 objective notes for final term

- 1) Eicosanoids that cause the inflammation or called pro inflammatory.
 - a) Omega 3
 - b) **Omega 6**
 - c) omega 9
 - d) All of these
- 2) What is the correct ratio of omega 3 and 6 in the diet?
 - a) 1:3
 - b) **1:4**
 - c) 1:5
 - d) 1:8
- 3) Omega -3 fatty acids such as alpha-linolenic acid and its derivatives has effects on human health is
 - a) Inflammatory
 - b) **anti inflammatory**
 - c) no effects
 - d) all of these
- 4) Docahexonic Acid (DHA) is selectively incorporated into____
 - a) Cell membrane
 - b) Retinal membrane
 - c) postsynaptic neural membrane
 - d) **B and C**
- 5) Omega -3 fatty acids are beneficial particularly for diseases r)
 - a) Cardiovascular
 - b) Alzheimer's
 - c) Cancer
 - d) **All of these**
- 6) Monoenoic Acids (Oleic Acid) are possibly the most fatty acids present in
 - a) **Olive Oil**
 - b) Corn
 - c) soya bean
 - d) peanut
- 7) Polyunsaturated fatty acids contain ____ Double bonds
 - a) Single
 - b) Double
 - c) **More than one**
 - d) tripple
- 8) Example of Polyunsaturated fatty acids are.....
 1. Linoleic Acid
 2. oleic Acid
 3. Arachidonic Acid
 4. **All of these**
- 9) how many double bonds are present in Arachidonic Acid
 - a) Single
 - b) Double
 - c) Triple
 - d) **Tetrad**
- 10) Arachidonic Acid synthesized from ____ Acid
 - a) **Linoleic Acid**
 - b) Alpha-Linolenic Acid
 - c) Palmatic Acid
 - d) None of these
- 11) ____ is a precursor of paracrine hormones called Eicosanoids

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- a) Linoloic acid
b) Alpha-linolenic acid
c) **Arachidonic Acid**
d) All of these
- 12) Eicosanoids exer complex control over many bodily systems in
a) inflammation
b) b)immunity
c) c)messengers
d) **All of these**
- 13) Palmetoleic Acid belongs to which family?
a. Omega 3
b. Omega 6
c. **Omega 7**
d. omega 8
- 14) Fatty acids commonly found in body which are
a) Palmitic Acid
b) Stearic Acid
c) Oleic Acid
- 15) **All of these** Excess carbohydrates in the body are converted into
a) **Palmitic Acid**
b) Stearic Acid
a) Acid
c) None of these
d)
16. the no. of carbon atoms in stearic Acid are
a) 15
b) 16
a) 17
c) **18**
17. most common saturated fatty acid found in Animals, plants and microorganisms.
a) Palmitic Acid
b) Stearic Acid
c) Oleic acid
d) None of these
18. Eicosanoids are derived from fatty acids
a) Omega 3
b) Omega 6
c) Omega 8
D) **Omega 3 and 6**
19. is the first fatty acid produced during fatty acid synthesis
a) **Palmitic Acid**
b) Stearic Acid
d) Oleic Acid
e) None of these
20. stearic acid are most abundant in animal fat up to
a) 25%
b) **30%**
c) 35%
21. which is the monounsaturated Fatty acid found naturally
a) Palmitic Acid
b) SteariciOrcid
c) **Oleic Acid**

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- d) None of these
22. which fatty acid is highly abundant in membrane lipids
- Palmitic Acid
 - tearic Acid
 - Oleic Acid**
 - None of these
23. Glycerol and sphingosine are the type of most commonly found in lipids
- Esters
 - Alcohols**
 - Fatty Acids
 - Amides
24. glycerol contains _____ Carbon and _____ hydroxyl OH groups
- 3 and 3**
 - 3 and 4
 - 2 and 3
 - 2 and 2
25. is synthesized from Dihydroxyaceton phosphate
- Alcohols
 - Fatty Acids
 - Glycerol**
 - sphingosine
26. Dihydroxyaceton phosphate is acted upon by _____enzymes to form glycerol
- one enzyme
 - two enzymes**
 - three enzymes
 - four enzymes
27. which enzyme remove the phosphate group from glycerol phosphate to become glycerol
- Glycerol phosphate dehydrogenase
 - glycerol kinase**
 - phosphatease
 - All of these
28. Glycerol is a precursor for synthesis of _____ and _____ in the liver and adipose tissue
- Triacylglycerols and phospholipids**
 - diacylglycerols and glycolipids
 - monoacylglycerols and phospholipids
 - tryacylglycerols and glycolipids
29. when the body uses stored fat as a source of energy glycerol and _____are released into blood stream
- Amino Acids
 - Glucose
 - Fatty acids**
 - Triacylglycerols
30. sphingsine is an _____
- Poly Alcohol
 - Amino Alcohol**
 - glyco Alcohol
 - None of these
31. sphingosine is synthesized in the body in the form of _____
- Amide
 - Ceramide**
 - newmideyride
32. serine and palmitoyl CoA condense to form a product ketosphiganinine that is _____to sphiganine

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- a) Oxidised
b) **Reduced**
c) Hydrolysed
a) Condensed
33. sphingosine is formed via degradation of sphingosine in the _____
a) **Lysosomes**
b) Golgyappratus
c) Neuc l s
d) Cytoplasm
34. In Acrolein test we used _____ acid for dehydration to detect glycerol
a) Nitric Acid
b) Phosphoric Acid c
c) **sulphuric Acid**
d) Hydrochloric Acid
35. glycerol combines with three molecule to form glycerol trinitrate
a) **Nitric Acid**
b) Phoshoric acid
c) Suphuric acid
d) None of these
36. which enzyme is used to hydrolyzed the Triacylglycerols
a) Protease
b) Glycerol kinase
a) phosphatase
b) **lipase**
37. There are _____ significant advantages to using triacylglycerol as stored fuels.
a) One
b) **two**
c) three
d) four
38. The carbon atoms of fatty acids are more _____ than those of sugars.
a) Oxidized
b) **reduced**
c) condensed
d) All of these
39. Triacylglycerol yields more than _____ as much energy as the oxidation of carbohydrates.
a) **Twice**
b) thrice
c) four times
d) 5 times
40. Triacylglycerol are _____ and therefore _____
a) **Hydrophilic — Hydrated**
b) Hydrophilic — Dehydrated
c) Hydrophobic — Dehydrated
d) Hydrophobic — Hydrated
41. the organism that carries fat as fuel doesn't have to carry the extra weight of _____
a) Proteins
b) **water**
c) carbohydrates
d) none of these
42. One gram of polysaccharide has _____ gram of water
a) One
b) **Two**

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- c) three
d) four
43. Moderately obese people with _____kg of triacylglycerol deposited in their adipocytes could meet their energy needs for months.
a) 5 to 10 kg
b) 10 to 15kg
c) 15 to 20 kg
d) 20 to 25 kg
44. the human body can store less than _____energy supply in the form of glycogen
a) A day
b) 2 days
c) 3days
d) 4 Days
45. In some animals triacylglycerol storeunderthe skin serve as insulation against_____
a) Low temperature
b) High temp
c) Moderate temperature
d) All of these
46. Physical properties of N- are
a) colourless
b) tasteless
c) odorless
d) All of these
47. the specific gravity of all fats is less than
a) one
b) two
c) three
d) Four
48. The emulsification of dietary fats in intestinal canal brought about by
a) Bile pigments
b) Bile juice
c) Bile salts
d) All of these
49. During the hydrolysis of Fats it yields____
a) fatty acids
b) Glycerol
c) Fatty acids and glycerol
d) cant be hydrolized
50. During the hydrolysis of Triolein is converted into
a) Palmitic Acid
b) Stearic Acid
c) Oleic Acid
d) None of these
51. hydrolysis of a fat by an _____ is called saponification
a) Acid
b) Base
c) Alkali
d) All of these
52. the alkali salts of the fatty acids which are called_____
a) soaps
b) toothpaste
c) Detergents

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- d) All of these
53. which Alkali is used to form sodium plamitate soap formation
- a) NaOH
 - b) CaOH
 - c) KOH
 - d) NH₄ OH
54. the amount of alkali needed to saponify a given quantity of fat will depend upon the number of _____ group present
- a) Amino group
 - b) alkyl group
 - c) carboxyl group
 - a) group
55. Fats containing _____ chain fatty acids will have _____ COOH groups per gram than long chain fatty acids.
- a) Short-more
 - b) long -more
 - c) short -less
 - d) long -less
56. saponification number of butter is _____
- a) 220 to 230
 - b) 245 to 262
 - c) 1 to 200
 - a) d)210 to 233
57. Additive reactions consist of CD
- a) Hydrogenation A
 - b) Haloge
 - c) A and B
 - d) Decomposition
58. During the hydrogenation OF lipid the melting point _____ and fat becomes more _____ at room temperature.
- a) decrease -liquid
 - b) Increase-Solid
 - c) Decrease-Solid
 - d) increase -liquid
59. During hydrogenation of fatty acids catalyst is used
- a) nickel
 - b) copper
 - c) Nickel and copper
 - d) Zinc
60. Margarine manufacturing means _____
- a) changing liquid to solid
 - b) Solid to liquid
 - c) Liquid to liquid
 - d) All of these
61. Addition of halogens in unsaturated fatty acids is called
- a) Hydrogenation
 - b) halogenation
 - c) hydrohalogenation
 - d) All of these
62. the degree of unsaturation is reflected by
- a) Iodine number
 - b) sponification number
 - c) A and B
 - d) Sodium Number

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63. Iodine number is defined as the number of grams of iodine absorbed by ____ of fat
- 50gm
 - 100gm
 - 75gm
 - 85gm
64. during the conversion of Linoleic acid at room temperature into Tetraiodostearic acid which catalysts are/is used?
- Acetic Acid
 - Methanol
 - Acetic Acid and Methanol
 - None,c,
65. fats rich in unsaturated fatty acids have _____
- High Iodine number
 - Low iodine number
 - Moderate number
 - all of these
66. the higher is the iodine number the _____ reactive and _____ stable
- More- less
 - Less- more
 - More -More
 - Less- more
67. Rancidity occurs particularly when expose to
- Light
 - Heat
 - Atmospheric
 - All of these
68. _____ fats resist rancidity more than _____ fats that have unsaturated double bonds
- Saturated-unsaturated
 - Unsaturated-Saturated
 - less saturated-
 - More Unsaturated
69. Rancidity is occurs due to
- Oxidation
 - Hydrolysis
 - Hydration
 - Oxidation and Hydrolysis
70. oxidation of the fat molecule give rise to some short chains of
- Aldehydes
 - ketones
 - dicarboxylic acids
 - All of these
71. The Rancidity be prevented in the food by adding
- Vitamin E
 - Vitamin D
 - Vitamin A
 - All of these
72. Second type of neutral lipids that are of physiological importance.
- Glycerol
 - alcohol
 - waxes
 - aldehydes
73. waxes are _____ in water and _____ in fat

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- a) Soluble - insoluble
b) Insoluble-soluble
c) soluble –soluble
a) d)insoluble-insoluble
74. waxes are _____ by lipases
a) Digestible
b) indigestible
c) semi digestible
d) no effect
75. there are _____ types of waxes
a) One
b) two
c) Three
d) Four
76. True waxes are solid simple lipids containing a
a) Monohydric Alcohol
b) Dihydric alcohol
c) trihydric alcohol
d) polyhydric alcohol
77. Which alcohol compound is found in plant cuticle waxes and in bees wax
a) Myricyl Alcohol
b) Cetyl Alcohol
c) Polyhydric Alcohol
d) A and B
78. Example of true waxes is/are
a) Bee wax
b) spermaceti wax
c) Cholesterol
d) A and B
79. Bees wax is a mixture of waxes its chief constituent is
a) Myricyl and Palmitate
b) Myricyl and Acetic Acid
c) Palmitate and Oleic Acid
80. sperm whale contains _____ wax in his head
1. 330Kg
2. 300Kg
3. 3N9Kg
4. 336kg
81. the wax obtained by Brazilian palm tree is _____
a) Bees wax
b) Camauba wax
c) jojoba wax
d) All of these
82. waxes used for candles, soaps and cosmetics is
a) Bees wax
b) Carriltilawa-x
c) jojoba wax
d) All of these
83. LDL cholesterol and HDL cholesterol stands for?
no options
a) Low density Lipoprotein
High density lipoprotein

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84. which type of cholesterol have been associated with decreased risk for heart diseases
- LDL cholesterol
 - HDL cholesterol**
 - TAG
 - Total cholesterol
85. lipoprotein particles are spherical aggregates with _____lipids at the core and _____protein side chains and lipid head groups at the surface
- 1. Hydrophobic –hydrophilic**
 - Hydrophilic -hydrophobic
 - Hydrophobic —Hydrophobic
 - Hydrophilic —Hydrophilic
86. Lipoproteins function is to keep their components lipids as
- Soluble**
 - Insoluble
 - Semisoluble
 - None of these
87. Different types of lipoproteins are different in
- Size
 - Density
 - Site of origin
 - d) All of these**
88. The maximum concentration of TAG (Triacylglycerol) present in
- a) Chylomicrons**
 - VLDL
 - LDL
 - HDL.
89. the chylomicron remnant is removed from the circulation by the _____
- Kidney
 - Intestine
 - c) Liver**
 - testinal Mucosa
91. _____ are assembled in the liver
- Chylomicron
 - b) VLDL**
 - HDL
92. LDL contain _____ as their major apolipoprotein that carry cholesterol to _____
- a) apoB-100 and Extra Hepatic Tissue**
 - apoB-200 and Liver
 - ApoB-100 and liver
 - ApoB-200 and Extra hepatic Tissue
93. _____ can accumulate in the _____ lining the arteries resulting in the formation of atherosclerosis.
- Reduced LDL and Macrophage cells
 - b) Oxidized LDL and Macrophage cells**
 - Oxidized HDL and macrophage cells
 - Reduced HDL and Macrophage cells
94. which type of lipoproteins originates in the liver and small intestine
- Chylomicron
 - VLDL
 - LDL
 - d) HDL**
95. which type of lipoprotein take up cholesterol from peripheral tissues and return it to the liver as cholesterol esters

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- a) Chylomicron
b) VLDL
c) LDL
d) HDL
96. when cholesterol is taken up by the HDL, it is immediately _____ and becomes _____
a) Esterified - Hydrophobic
b) Oxidized - Hydrophobic
c) Esterified – Hydrophilic
d) Oxidized -Hydrophilic
97. when cholesterol is taken up by the HDL it is called _____
a) Nascent HDL
b) Mature HDL
c) Pre Mature HDL
d) Atikthese
98. which lipoprotein is called good cholesterol carrier
a) Chylomicron
b) VLDL
c) LDL
d) HDL
99. Healthy Fats contain _____
a) Monounsaturated fats
b) polyunsaturated fats
c) omegasacccrides
d) All of these
100. Saturated aft is associated with _____ levels of total cholesterol and LDL cholesterol
a) Low
b) High
c) Medium
d) Very low
- 101.. Prostaglandins are fatty acids containing atoms, including an internal
a) 10 C— 5 carbon ring
b) 15C —8 carbon ring
c) 20 C— 5 Carbon Ring
d) 20 C — 8 carbon ring
102. Prostaglandins have double bond between
a) C13 and C 14
b) C5 and C6
c) C17 and C18
d) All of these
103. Nomenclature of prostaglandins (PGs) involves assignment of
a) Capital letter
b) Numeral subscript
c) Greek letter subscript
d) All of these
104. Nomenclature of (PGs) the capital letter refers
a) Ring OH group
b) Ring Double Bond
c) Ring substituents
d) All of these
105. Which prostagland ins contain 2 rings ,,,,,,•:
a) PGA
b) PGD

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- c) PGI
d) All of these
106. The no of unsaturated bonds in Prostaglandins is determined by
- Capital letter
 - Numeral subscript
 - Greek letter subscript
 - All of these
107. is there are two double bonds present in prostaglandins is determined
- Series one
 - Series two
 - Series three
 - Series four
108. The Greek letter subscript found only in series it refresh group at carbon 9
- F — OH group
 - A — OH group
 - F — COOH
 - A — COOH group
- saturated fats are found in
- Butter and cheeses
 - milk and palm oil
 - Animal fat and coconut oil
 - all of these
109. Among the SFAs stearic acid appears to have effect on LDL-C
- Negative
 - Neutral
 - Positive
 - Polar
110. Saturated Fatty Acids (SFAs) are considered to Hypercholesterolemic
- Luaric Acid
 - Myristic
 - palmitic
 - All of these
111. Denary cholesterol has on plasma cholesterol go
- Little effect
 - High Effect
 - Medium Effect
 - low effect
112. There are classes of phospholipids
- one
 - two
 - three
 - four
113. Membrane lipids are i.e one end of the mol le is hydrophobic and the other ishydrophilic-
- Amphoteric
 - amphipathic
 - tholhatic
 - none of these
114. Phospholipids is not synthesized c
- Liver
 - adipose tilt!frv
 - mammary glands
 - mature erythrocytes

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115. Phosphoglyceride is a α -glycerol with a group on the carbon of glycerol

- a) phosphate — 3 carbon \
- b) Amide — 3 carbon
- c) sulphate — 3 carbon
- d) phosphate — 5

116. in general glycerophospholipids contain at Carbon no 1 (C-1)

- a) Saturated
- b) Unsaturated
- c) Phosphate
- d) All of these

117. the phosphate group on phosphatidic acid PA can be esterified to another compound containing

- a) Amide group
- b) Alkyl Group
- c) Hydroxyl group
- d) Ester group

118. the most abundant phospholipids of the cell membrane is

- a) Lecithins
- b) Phospholipidcholine
- c) phospholipidac,
- a) d)cetaine

119. the gaseous exchange occurs in lungs

- a) Alveoli
- b) bronchioles
- c) alveolus
- d) All of these

120. Adenosine 3'-phosphate-5'-phosphosulfate is the sulfate donor for:

- A) sulfated proteoglycans
- B) Conjugate of drugs
- C) Phosphosulfate
- D) Both a and b

121. Which of the following methyl group donor:

- A) S-adenosylmethionine
- B) Adenosine
- b) Phosphate -5
- c) All of these

122. and play key roles in activating or inhibiting proteins:

- a) GTP, GMP
- b) GDP, AMP
- c) GTP, GDP
- d) AMI:VMP

123. cAMP and cGMP serve as messengers in signal transduction pathways: (ZoN

- a) 1st
- b) 2nd
- a) c)3rd
- c) 4th

124. synthetic purine and pyrimidine analogs contains which group?

- a) Halogens
- b) Thiols
- c) additional of nitrogen atoms
- d) All of these

125. Pyrimidine are used for:

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- a) Chemotherapy
 - b) Treatment of AIDS
 - c) Organ translation
 - d) All of these
126. suffix "me" in bases denotes the presence of in the ring.
- a) Nitrogen
 - b) Amine
 - c) Viroxyl
 - d) Both a and b
127. The nitrogen-containing bases belong to families of count4:
- a) 2
 - b) 3
 - c) 4
 - d) 5
128. By the attachment of different groups to the different types of pyrimidine and purine are generated.
- a) Rings
 - b) Compound,
 - c) Nucleotide
 - d) Both a and b
129. which nucleotide contains AG:
- a. DNA
 - b. RNA
 - c. Both
 - d. None of these
130. Adenine when combines with the structure— is known as Adenosine
- a) Hexose
 - b) Pentose
 - c) Tetrose
 - d) All of these
131. Deoxyguanosine refers to which base?
- A) Adenine+ pentose
 - b) Guanine+pentose
 - c) Guanine+ribose
 - d) Guanine+sucrose
132. Which of the following is Minor Purine Bases:
- a) Inosine
 - b) methyl guanine
 - c) Both a and b
 - d) Guanine
133. Mercaptopurine, Allopurinol & 8-Azaguanine are referred to which type of bases?
- a) Natural
 - b) Unnatural
 - c) Doubles
 - d) Both a and b
134. Uric acid is the catabolic end product of in human beings:
- a) Guanine'
 - b) Purine
 - c) thymine
 - d) Cytosine
135. in the prostaglandins the Hydroxyl group OH primarily exists - 1h Position
- a) Alpha

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- b) Beta
c) Gamma
d) Omega
136. Act as substrate for the lipooxygenase
a) Arachidonic Acid
b) 20 C Fatty Acids
c) Arachidonic Acid and 20 C Fatty Acids
d) Arachidonic Acid and 15 C FAs
137. Products of Lipooxygenase pathway are
a) Cyclic
b) Linear
c) Cyclic or linear
d) double ringed
138. Nomenclature rules are followed for Leukotriene and lipoxins starts from
a) from series 1
b) from series 2
c) from series 3
d) All of these
139. ETA, and EPA stands for no options
Eicosa tri enoic Acid
Eicosa Pentaenoic Acid
140. Arachidonic acids have double bonds
a) one
b) two
c) three
d) four
141. lipooxygenase enzymes incorporation of _ molecule in arachidonic acid and forms
a) Oxygen — OOH
b) Oxygen — COOH
c) Oxygen — OH
d) Hydrogen — OH
142. when oxygen is added it isomerizes at away from the hydro-peroxy
a) One carbon
b) Two carbon
c) Three carbon
d) Four carbon
143. addition of oxygen during synthesis of leukotrienes and lipoxins configuration changes to
a) Cis to trans
b) Trans to Cis
c) Cis to double trans
d) Tranato Double Cis
144. During the isomerization of double bond becomes in Lipooxygenase pathway
a) one step forward
b) one step backward
c) two step forward
d) step backward
145. The Hydro-Perxy group is cc\Noor
a) Stable
b) Unstable
c) Very stable
d) low stable
156. which of the following molecules act as messenger moleculese
a) HETEs

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- b) Arachidonic Acid
- c) HerV
- d) All of these

157. LTs and D(s) are stands for no option

Leukotrienes and Lipoxins

HETEs: Hydroxy-eicosa-tetra-enoic acid

HPETEs: Hydro-peroxy-eicosa-tetra-enoic acid

158. LTs and D(s) have double.....as compared to Prostaglandins have double bonds

- a) 1 to 3 and 3 to 5
- b) 3 to 5 and 1 to 3
- c) 2 to 5 and 3 to 5
- d) 2 to 4 and 2 to 5

159. HPETEs are the precursors of

- a) leukotrienes 4
- b) lipoxins
- c) leukotrienes and lipoxins
- d) HETEs

160. 5-HPET is converted to

- a) LTA₄
- b) LTA₅
- c) LTA₆
- d) LTA₇

161. Functional leukotrienes are formed from LTA₄ examples are

- a) LTB₄
- b) LTC₄
- c) LTD₄
- d) A and B

162. Removal of residue from LTC₄ forms LTD₄

- a) Glycine
- b) Glutamine
- c) Glutamate
- d) Band C

163. Leukotrienes were so named because they were first discovered in

- a) Red blood cells
- b) White blood cells
- c) Platelets
- d) All blood cells

164. The lipoxins are formed through the action of and on Arachidonic Acid

- a) 15 and 5 lipoxygenase
- b) 10 and 5 lipoxygenase
- c) 5 and 5 lipoxygenase
- d) All of these

167. Chemotaxis is migration of _ to the tissue site of injury or inflammation

- a) RBCs
- b) WBCs
- c) Platelet
- d) All of these

168. Lipoxins induce chemotaxis and stimulate radicals for killing microorganisms

- a) Oxide
- b) Super oxide
- c) Trioxide

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- d) All of these
169. which of the followings have very short half lives
- Prostaglandins
 - Thromboxanes
 - leukatrienOwectjjeoxins
 - All of these
170. Nucleotides are the building blocks of .No optio0
Ans is Nucleic Acid
178. Nucleic acids, which include DNA and RNA,arnVre from monomers known as
- Nucleoside
 - Nucleotides
 - Poly nucleotides
 - All of these
179. Protein synthesis dependent on
- Nucleoside
 - Nucleotides
 - Poly nucleotides
 - All of these
180. Principal donors and acceptors of phosphoryl group in metabolism
- ATP
 - ADP
 - AMP
 - ATP and ADP
181. in ATP molecules the removal of Group release energy
- Sugar group
 - Ribose group
 - Phosphate
 - All of these
182. Examples of Co- Enzymes are
- coenzyme A,
 - FAD
 - NAD+and NADP+
 - All of these
- 183, Because of reversibility of reactions, conversion of product su rate:
- Forward
 - Back
 - Stop at
 - Both a and b in some cases
- 184) One simplifying approach in kinetics experiment to measure the:
- Initial rate
 - Designated VO
 - 1.51 greater >concentration
 - All of these
- 185) VO is the
- Initial velocity
 - Final velocity '.
- 186) Increase in substrate_____reaction
- Increase
 - Decrease
- Stop
 - Both b and c
- 187) When initial velocity (Vo) is plotted against [S] a hyperbolic curve results, which represent the :

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- a) Minimum velocity
b) **Maximum velocity**
c) Substrate concentration
d) Initial velocity
- 188) At relatively low concentrations of substrate, V_o almost linearly:
a) **Increases**
b) Decreases
c) Go forward
d) Go reverse
- 189) At this point in the reaction, if $[S] \gg E$, all available enzyme is
a) Unsaturated
b) **Saturated**
c) Polymerase enzyme
d) Helicase enzyme
- 190) finite limit of is called saturation kinetics
a) $[S]$
b) V_{min}
c) E
d) **V_{max}**
- 191) Michaelis constant is represented by?
a) M_c
b) M_k
c) **K_m**
d) M_h
- 192) Low concentration of substrate is needed to half-saturate the enzyme i.e. to reach a velocity that is ?
a) $1V_{Max}$
b) **$1/2V_{max}$**
c) $2V_{max}$
d) $2/3V_{max}$
- 193) A numerically K_m reflects a affinity of e
a) High, high
b) High, low
c) Low, low.
d) **Low, high.**
- 194) K_m glucose of approximately
a) 0.5mM
b) **0.05 mM**
c) 0.005mM
d) 5mM
- 195) Write Michaelis-menten equation, the rate equation with its symbols detail;no option
Ans is
$$V_o = \frac{v_{max}[S]}{K_m + [S]}$$
$$V_o = V_{max} \frac{[S]}{K_m + [S]}$$
$$K_m = \frac{K_1 + K_2}{K_1}$$
Where;
 - V_o = initial reaction velocity
 - V_{max} = maximal velocity
 - K_m = Michaelis constant
 - $K_m = \frac{K_1 + K_2}{K_1}$
 - $[S]$ = substrate concentration
- 196) Leonor Michaelis and Maud Menten in proposed a simple model that accounts for most of the features of enzyme-catalyzed reactions:
a) 1919

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- b) 1911
c) 1939
d) 1913
- 197) What is abbreviation of ES?
a) Enzyme study
b) Enzyme starting
c) Energy substrate
d) Enzymes substrate
198. is the most abundant substance in living systems, making up % or more of the weialk Z o ost organisms
a) Water — 80%
b) Protein — 70%
c) Water — 70%
d) Carbohydrate - 70%
199. Are of crucial importance to the structure and function of biomolecules
a) Hydrogen bonding
b) Polarity
c) Tendency of water to ionize
d) A and C
200. What gives water to its unusual properties like higher NO:13Pand 'Heat of Vaporization
a) Covalent bonding
b) Hydrogen bonding
c) Dipole forces Intermolecular forces
- 201) Ether lipids compounds constitute as much as of the phospholipids of brain and muscle
a) 5%
b) 10%
c) 15%
d) 20%
- 202) Ether lipids with an unsaturated group (alkenyl) at the 1st position on the glycerol chain are called :
A) Plasmalogens
b) Glycerophospholipids
c) (PAF) Platelet -activating factor
- 203) PAF is synthesized and released by a variety of cell :
a) Size
b) Types
c) Length by numbers
d) Both a and b
- 204) About of the heart phospholipids are plasma logens
a) All
b) Half
c) One fourth
d) Some
- 205) How many subclasses are There of sphingolipids:
a) 2
b) 3
c) 4
d) 5
- 206) Sphingoglycolipids molecules contain and components:
a) Carbohydrate
b) Lipids
c) Both a and b
a) None of these
- 207) Sphingolipids, like other membrane lipids, are compcis

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- a) hydrophobic portion
b) polar head_group
c) Plasmogens
d) BOTH A AND B
- 208) Sphingomyelins are present in the animal cells:
a) plasma membranes
b) Nucleus_
c) Cytoplasm
d) All body
- 209) Cerebrosides have ir' Nar)pfked to ceramide:
a) single
b) Double
c) Triple
d) Both a and d
- 210) Galactosylceramide is a major glycosphingolipid of
a) Nucleus
b) Digestive system
c) Brain
d) Both a and b
- 211) Globosides are •
a) Glycosphingolipids
b) Galactosylceramide
c) Cerebrosides
d) Both a and b
- 212) Globosides are highly abundant in
a) RBCs
b) Wbc
c) Platelets
d) All of these
- 213) Sialic acids are acidic sugars with a carbon backbone:
a) Six
b) Seven
c) Eight
d) Nine
- 214) Sialic acid gives gangliosides the charge at pH 7
a) Neutral
b) Positive
c) Negative
d) Both b and c
- 215) About of brain lipids are gangliosides and were first isolated from the ganglion of brain cells
a) 4%
b) 5%
c) 6%
d) 7%
- 216) Gangliosides have a significant role in
a) Growth
b) differentiation of tissues
c) carcinogenesis
d) All of these
- 217) The basis of blood groups depends on the presence of different antigens on
a) RBCs

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- b) Wbc
c) Platelets
d) All of these
- 218) Modification of O antigen in blood groups respectively:
a) A
b) B
c) AB
d) All of these
- 219) Sulfatides are found predominantly in ?
a) nerve tissue
b) Kidney
c) Stomach
d) Both a and b
- 220) Gangliosides have oligosaccharides as their head groups:
a) Non_polar
b) Polar
c) Neutral
d) Both a and b
- 221) Glyceroglycolipids are the predominant membrane lipids of?
a) Animals
b) Plants
c) Prokaryotes
d) Eukaryotes
- 222) Galactolipids constitute about of plant membrane lipids:
a) 50% to 60%
b) 60% to 70%
c) 70% to 80 %
d) 80% to 90%
- 223) abundant lipids in the biosphere are?
a) Sulfolipids
b) Galactolipids
c) Glycolipids
d) Glyceroglycolipids
- 224) Sulfonated glucose is joined to the of diacylglycerol in glycosylation:
a) C2
b) C3
c) C4
d) C5
- 225) Galactolipids and Sulfolipids are included in?
a) Glyceroglycolipids
b) Glycolipids
c) Glycerolipids
d) None of these
- 226) O antigen also referred to as i gen:
B) A
C) B
D) C
E) H
227. Nucleotides that includes in pyrimidine are/is

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- a) Cytosine
 - b) thymine
 - c) Uracil
 - d) All of these
228. Cytosine when combine with pentose it be
- a) deoxyctytidine
 - b) cytidine
 - c) monoxycytidine
 - d) A&B
229. Which of the following is 2,4-dioxy-5-Methyl-Pyrimidine?
- a) Cytosine
 - a) Thymine
 - b) Uracil
 - c) Adenine
230. 'N' it is the structure of x eis
- a) Pyrimidine
 - b) Purine
 - c) Cytosine
 - d) None
231. the difference between thymine and Uracil is
- a) Nitrogen group
 - b) Hydroxyl Grott
 - C) Alcohol Group
 - c) Methyal Group
232. Which of the following is Minor PyramidineBase
- a) Fluorouracil
 - b) ceytosine
 - c) Dihydrouridine
 - d) Non of these
233. DHU , 5FU and AZC stands for
DHU — Dihydrouridine 5FU — Flouro uracil
AZC- Aza Cytosine
234. Which of the following nucleotide can b degraded in human cells
- a) Purine
 - b) Pyrimidine
 - c) ATP
 - d) RNA
235. During the stability of B-Alanine and B-Amino-iso-butyrate the production is
- a) NH₃
 - b) CO₂
 - c) O₂
 - d) A&B
236. sugar that found in nucleic Acids
- a) D- Ribose
 - b) 2-Deoxy D- Ribose
 - D) L- Ribose
 - c) A&B
237. the difference between Dexyribose and Ribose is
- a) Addition of Hydrogen at C- 2'

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- b) Addition of Oxygen at C-2'
c) Addition of hydroxyl group at C-3'
d) Addition of Hydroxyl group at C-2'
238. Ribose and Deoxyribose are belongs to
a) Bfamily
b) C Family
c) D family
d) All of these
239. Ribose and Deoxyribose present as Furanose (ring) in the form of
a) B-Anomer
b) D-Anomer
c) Aldo-Anomer
d) Pento-Anomer
240. The addition of a pentose sugar to a base produces a
a) Nucleotide
b) Nucleoside
c) Nucleoprotein
d) Nucleosome
241. Nucleotides are
E) Ester of Methyl
F) Ester of Nucleosides
G) Ester of purine
H) Ester of Pyrimidine
242. Which of the following Energy molecules contain more energy
a) AMP
b) ADP
c) ATP
d) GMP
243. Phosphate groups give an overall charge to the nucleotides
a) Positive
b) Negative
c) Neutral
d) All of these
244. The nitrogen containing bases are i.e they have alternate bonds
a) Aliphatic — double
b) Aromatic — Triple
c) Aromatic — Double
d) Aliphatic — Triple
245. structure that contain other atoms in addition to carbon in ring structure called
a) Homocyclic
b) Heterocyclic
c) Isocyclic
d) polycyclic
246. Nucleotides have nature
C) Aromatic
b) Heterocyclic
c) Aromatic and Heterocyclic
d) Homocyclic
247. the six atoms rings of Purine and pyrimidines are numbered in
a) Same direction

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- b) Opposite direction
c) Linear Direction
d) Cyclic Direction
248. which of the nucleoside contain double ring
a) Purine
b) Pyrimidine
c) Cycline
d) Hexocycline
249. Purines or pyrimidines with an H are weak bases
a) Amino Group
b) Hydroxyl Group
c) Methyl group
d) ester group
250. the most important functional groups of pyrimidines and purines are no options
Ans Nitrogen Carbonyl groups Exocyclic Amino Group
251. Purine and Pyrimidine bases are
a) Hydrophilic
b) Hydrophobic
c) Neutral
d) All of these
252. The conjugated double bonds of purine and pyrimidine derivatives absorb
a) Infra red Light
b) Heat Waves
c) UV Light
d) all of these
253. The mutagen property is utilized in analysis of nucleotides and nucleic Acids
a) Qualitative Analysis
b) Quantitative Analysis
c) Qualitative and Quantitative Analysis
d) Numeric Analysis
254. purine and pyrimidine bases can exist in form at physiologic pH
a) keto-enol
b) amine-imine
c) A&B
d) Aminol
255. Smaller pyrimidine molecule has the and the larger purine molecule
a) Longer name — shorter name
b) Shorter name — Large name
c) Longer name — longer name
d) Shorter name — Shorter name
256. Sugars are linked to the heterocyclic by a
a) Glycosidic Bond
b) N- Glycosidic Bond
c) B-N-Glycosidic Bond
d) All of these
257. B-N-Glycosidic Bond in pyrimidine forms at and Purine at
a) N-1 and N-9
b) N-3 and N-9
c) N-1 and N-3
d) At any position
258. Glycosidic bond is formed when removed from pentose and H removed from Base
a) OH and H

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- b) H and OH
c) OH and O
d) O and H
259. The difference between glycosidic linkage and O-glycosidic bond is
a) Nitrogen and Oxygen
b) Carbon and Nitrogen
c) oxygen and Hydroxyl
d) Amino and Carboxyl
260. The atoms in the rings of the bases are numbered in pyrimidines & in purines
a) 1 to 5 and 1 to 6
b) to 6 and 9
c) 1 to 9 and 1 to 6
d) to 7 and 9
261. In the structure of Nucleotides the prime no is given to
a) Nitrogen Base Carbons
b) Sugar carbons
c) Phosphate
d) All of these
262. If we say 5'- carbon in a nucleoside or nucleotide is referred to
a) Nitrogen Base Carbons
b) Sugar carbons
c) Phosphate
d) All of these
263. When two or more nucleotides combine together a bond is formed
a) Glycosidic Bond
b) Peptide
c) phosphodiester Bond
d) Hydrogen Bond
264. Phosphodiester bond is formed between group of sugar and group of other base
a) 3' OH and 5' PO₄
b) 2' OH and 5' PO₄
c) 5' OH and 3' PO₄
d) 5' OH and 5sPO₄
265. The backbones of both DNA and RNA
a) Hydrophobic
b) Hydrophilic
c) Neutral
d) None of these
266. The formation of Hydrogen bonding in nucleotides is because
a) OH group of Sugar
b) Amino Group of Bases
c) Phosphate negative charge
d) All of these
267. The phosphate group is completely ionized at pH
a) Acidic pH
b) Basic pH
c) Neutral pH
d) All of these
268. The negative charges on phosphate are generally neutralized by with positive charges
a) Ionic interactions
b) Covalent Interaction

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- c) Polar interactions
d) Non polar interactions
269. Cyclic G MP serves as second messenger in response to
- Super oxide
 - Nitric oxide**
 - Super Hydroxide
 - All of these
270. DNA present in
- Chromosomes of Eukaryotes
 - Mitochondria
 - Chloroplast and plasmids
 - All of these**
271. DNA is a polymer of
- Deoxyribonucleoside monophosphate**
 - Deoxyribonucleosidediphosphate
 - Deoxyribonucleoside Triphosphate
 - All of these
272. The protein -DNA complex is present(non membrane bound region known as
- Plasmid
 - Nucloside
 - Nucleoid**
 - Nucleolus
273. In DNA double helix, the two strands of DNA are held together by.
- glycosidic linkage
 - Phosphodiester linkage
 - Hydrogen bonding**
 - other interactions
274. The complex folding of large chromosomes within eukaryotic chromatin and bacterial nucleoids is generally considered
- Primary structure
 - Secondary structure
 - tertiary structure**
 - All of these
275. The stacking also involves a combination of interactions between the bases.
- Van der Waals
 - Dipole — Dipole
 - Hydrogen bondings
 - A&B**
276. Base stacking helps to _contact of the bases with water
- Minimize**
 - Maximize
 - no effect
 - All of these
277. A key factor affecting the rate of a reaction catalyzed by an enzyme is the conce45 of;
- Enzyme
 - substrate,**
 - pH
 - Temperature
178. The water molecules have partial charges
- positive
 - Negative
 - One negative and 2 positive**

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- d) All of these
179. Attraction between Oxygen atom of one water molecule and hydrogen of another molecule this bonding is called
- Covalent ballifirtf
 - Electrostatic forces
 - Hydrogen bonding
 - All of these
280. Oxygen atom allows each water molecule to form hydrogen bonds with as many as neighboring water molecules
- One
 - Two
 - Three
 - Four
281. The degree of ionization of water into H⁺ and OH⁻ ions is
- Higher
 - Smaller
 - Mediator
 - None
282. During ionization of water the hydrogen ions hydrated to
- Ammonium ion
 - Hydronium ion
 - Hydroxyl ion
 - Hydronium ion
283. The ionization of water can be measure by its
- Head conductivity
 - Hydrogen conductivity
 - protonation
 - Electrical Conductivity
284. At 250C only about out of every 10⁹ molecules in pure water ionized at any instant
- one
 - Two
 - Three
 - Four
285. Write the equilibrium constan for the reversible ionization of waterNO option
 $K_{eq} = \frac{[H^+][OH^-]}{[H_2O]}$
286. One mole of water is weighs is
- 18g
 - 18 amu
 - 21g
 - 21 amu
287. The product in water equilibrium is designated as
- Ke
 - Keq
 - Kw
 - keqw
288. The value for Keq, determined by electrical conductivity measurements of pure water, is at 250C
- 1.8×10^{-16}
 - $1.9 \times 10^{+16}$
 - 1.8×10^{-18}
 - 1.9×10^{-1}
289. When there are exactly equal concentrations of H⁺ and OH⁻, as in pure water, the solution is said to be at _
- Acidic pH

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b) Basic pH

c) Alkali pH

d) Neutral pH

290. PH means

a) Negative logarithm

b) Negative logarithm of Hydrogen ions

c) Negative logarithm of HO ions

d) Positive logarithm of Hydrogen

291. For each pH unit less than 7.0, the $[H^+]$ is tenfold and for each PH unit above 7.0, it is _tenfold

A) increased and decreased

B) Decreased and increased

C) less and decreased

D) more and increased

292. pH + pOH =

a) 11

b) 12

c) 14

293. What will be the pH of 0.1 N CD

a) 1

b) -1

c) +1

d) 2

294 The stronger the acid, the greater its tendency ionizes that means...

a) to gain electrons

b) to gain proton

c) to lose its proton

d) to gain electrons

295. Which of the following acids are strong acids?

a) Sulphuric Acid

b) Hydrochloric Acid

c) Nitric Acid

d) All of these

296. Strong bases are/is

a) NaOH

b) CaOH

c) NH₄OH

d) All of these

297. The stronger the tendency to dissociate a proton, the stronger is the acid and the its pK_a

a) stronger

b) higher

c) neutral

d) lower

298. is used to determine the amount of an acid in a given solution

a) Molarity

b) pH

c) Titration

d) normality

299. A measured volume of the acid is titrated with a solution of known concentration

a) weak Base

b) Strong Bas

c) neutral solution

d) All of these

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300. The pH of the equimolar solution of acetic acid and acetate is exactly equal to the pKa of acetic acid pKa=

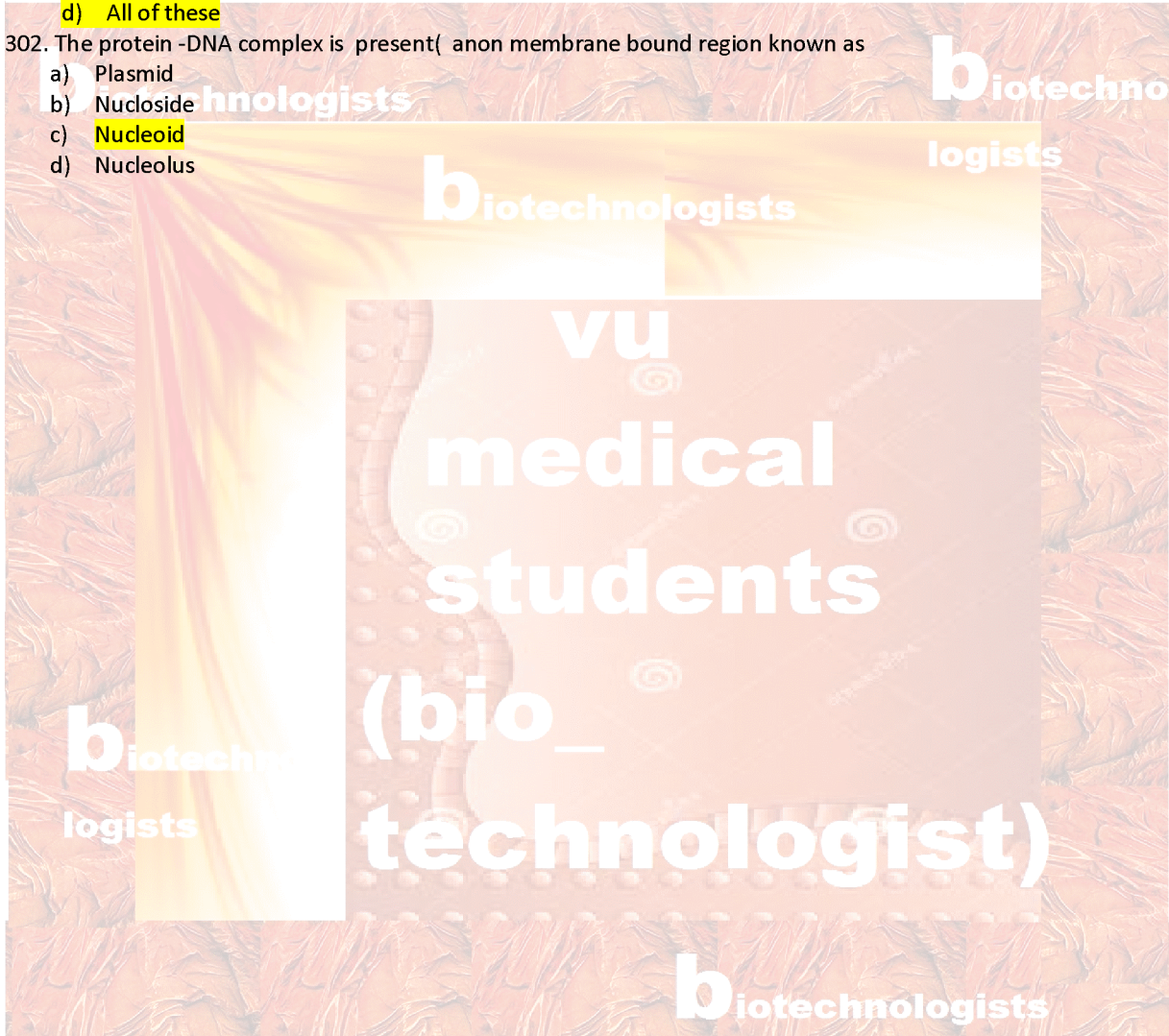
- a) 4.32
- b) 4.75
- c) 4.76
- d) 9

301. The Henderson Hassebalch HH equation relates

- a) pH
- b) pka
- c) buffer concentration
- d) All of these

302. The protein-DNA complex is present(an non membrane bound region known as

- a) Plasmid
- b) Nucleoside
- c) Nucleoid
- d) Nucleolus



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