

## Archive Of Biochemistry

1- What is the main component of the synovial fluid ?

-Hyaluronic acid

2- The structure that protects the protein during folding is?

-chaperones

3- which one of the proteins lies closest to the +ve electrode ?



-albumin

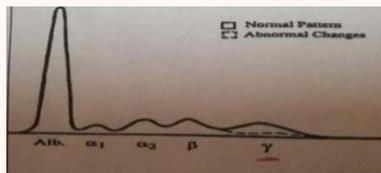
4- What is the name of the (OH-) group ?

-Hydroxyl group

5- What is the molish reagent ?

-Alpha naphthol

6- What is the diagnosis?



-AIDS

7- What is the sugar that gives (negative result in Benedict test and positive results in Seliwanof test)?

8- What is the chemical substance that is used as blood anticoagulant?

-Calcium

9- What is the amino acid that gives a yellowish color with the ninhydrine ?

-Proline

10- The affinity of enzyme for substance , when the enzyme has  $k_m=0.5m$  will be .....than the affinity of an enzyme for its substance when the enzyme has an  $k_m =0.5$  ?

-lesser

11- When the rate of enzymatic reaction is controlled by amount of of enzyme present , which of the following factors contole the enzyme level ?

-rate of transcription and protein synthesis

12- Which of the following is true of enzyme that is regulated by allosteric regulation ?

-The are usually multimeric enzyme

13- The term that decribes a theoretical value achieved when all enzyme substrate binding sites occupied by the substrate is ?

-(v-max)

14- If the absolute concentration of enzyme is unknown , which of the following values is determined experimentally ?

- $K_m$  and v-max

15- The blood sugar is ?

-Dextorose

16- Which of the following will increase the iron absorption from cereal ?

-Orange juice

17- The most stabilized form of cyclic carbohydrates is ?

-Beta form, because all the (OH-) groups are equal 18-What causes

Ehlers-Danols syndrome ?

-Abnormal procollagen gene

19- The bond that connects two monosaccharide is ?

-Glycosidic bond

20- What is the vitamin that has glutamate in its structure ?

-Folate

21- What is the vitamin that can be made from tryptophan ?

-Vitamin B6

22- There is no prsipitation of protein in a solution when ?

-the pH of the solution is away from the isoelectric point 23- What organ

that uses the glucose for energy ?

-the brain

24- The amino acid that is responsible of growth and development is ?

-Arginine

25- One of these amino acids is non-standard one ?

-selenocystine

26- One of these choices is true .

-tryptophan ⑦ niacin

27- The main difference between glucose and fructose is ?

-isomer differ in their atom connectivity 28- The sickle cell anemia affects the ?

-Beta chain

29- Which type of regulation occurs in the slowest time frame?

-new synthesis of enzyme through gene induction

30- Selective qualities of enzyme are recognized as its ? -specificity

31- Which one of the following statements is not true about enzyme ?

-enzymes are named for the product formed

32- pepsin ,an enzyme found in the stomach acts best at pH = 2, but it's not active at pH = 7 , why ?

-the optimal pH helps to maintain the tertiary structure of the enzyme

33- Which of the following statements concerning enzyme active site is incorrect ?

-Consecutive correct responses

34- N of the  $H_2PO_4$  if the M=6 is?

-18

35- If the N=3 of the  $H_2CO_4$  the mortality is?

-1.5

36- If you know that the chemical formula of the amino acid glycine is  $C_2H_5NO_2$  then what is the molecular formula of a peptide that is composed out of 10 residues of glycine

- $C_{20}H_{32}N_{10}O_{11}$

37- A boy's body lack collagen , which amino acid would makeup for the the lack of the following ?

-Glycine

38-Which of these are polar covalent bond ?

P-Ca

39- One of the below is not canonical amino acid property ?

-All alpha amino acids 40- NH is?

-Amino group

41- Ligases enzyme is?

-Join two molecules with covalent bond 42-Which is true about micro pipette?

-They are subject to inaccuracies caused by the changing environment

43- How is the polypeptide chain formed?

-Carboxyl group give hydroxyl group from amino acid and amino group give hydrogen from another amino acid

44- When the percentage of carbon dioxide in the blood increases PH become ?

7.3

- 45- the peptide bond?  
-Lost hydroxyl (OH) from carboxylic group and lost hydrogen (H) from amino acid
- 46- Essential amino acid for pregnant and children is ? – Arginine
- 47-What is the process that creates vitamin D? -decarbonylation 48- tripeptide is?  
-3 amino acid & 2 peptide bond
- 49- The reason for the formation of phenylketonuria?  
-Defect in the enzyme
- 50-The order of the density of lipoprotein from lowest to highest?  
-CM , VLDL , LDL ,HDL
- 51- All of the amino acid can change the color of non-hydrine except  
Proline
- 52- Which of the following is true  
-Alcohol, sugar contains riboflavin
- 53- Vitamins that associated with acetylcholine are  
- Bantothenic acid, thiamine
- 54- One of the following is false about vitamins  
-Water soluble vitamins are more stable than fat soluble vitamins
- 55- Which of the following tissue that produce gamma globulin  
-Lymphatic tissue
- 56- A coenzyme that transport H<sup>+</sup> is  
-FAD and NAD<sup>+</sup>

57- All of the following amino acids transport the carbon group in metabolism except

-Glutamic acid

58- The serum contain

-Albumin

59- Hemoglobine and myoglobin consist of type of secondary structure is

-Alpha helix

60- Which of the following enzyme that help in divition of pathgenes

-Induced enzymes

61- Which of the following statement is true about the contraction of skeletal muscle

-The power stroke of skeletal muscle contraction occure when the myosin head release ADP and Pi

62- Km is

-Substrate construconstruction

63- Which of the following statement sbout collagen is true

-Collagen contains high proportion of hydroxylated proline

64- Which of the following statement correctly discribes the behaviour of haemoglobin protein in sickle cell disease

-Neighbouring haemoglobin proteins aggregate tighter

65-What is the reason that cause Phenylketonuria(PKU) :

PKU is caused by mutations in the gene that helps make an enzyme called phenylalanine hydroxylase this enzyme is needed to convert the amino acid

66- which of the following is not a motif:

Alpha sheet

67- which of the following is most convenient ,most accurate ,least accurate , and does not deliver a variable volume : Pasteur ,micropipette , serological , fixed volumetric

68- what is the properties of standard amino acid:

- all are on alpha carbon
  - all are protenogenic and canonical
  - all are chiral and optical active except glycine
  - all are precursors for other biomolecules like histidine
  - all are added by triplet genetic code during mRNA protein synthesis
- 69-

what is the function of chaperon:

- degrade misfolded protein
- help misfolded protein to refold
- assist the process of folding

70- In your opinion , what is the most dangerous things that happend in the laboratory :

Put the flammable liquid near the oven

71- one of these answers found in beta sheet and not found in alpha sheet:

Intermolecular bonds between chains

72- what are the parts of micropipette that need maintenance?

Adjustment of the plunger

73- which of these contain hydrogen bond on polypeptide chain at side to side:

Beta sheet

74- what is the type of reactions that happened with Anabolic:

Requirement reaction

75- One of these answers is TRUE about phospholipid:

Micelles

76- which fatty acid is the longest:

-Lignoceric

77- Anabolism is conversion of macromolecules to micromolecules , which of the following is true :

-three of the responses are correct

78- The reason that cause Sickle Cell Anemia :

Glutamic acid is substituted for valine in beta sheet

79- The bond that not found in secondary structure for protein :

Peptid

80- which of the following is true for the relationship of ph and pka :

At ph higher than pka there is more base than acid



81- which one of the polysaccharide found in plant:

Starch and cellulose

82- Examples of mutations\errors in arranging amino acid : -

Glutamic acid is substituted instead of valine in beta sheet

83- One of these proteins is not a conjugated protein: -Peptone

84- Which one of the functional groups accept H:

Amines(NH<sub>2</sub>)

85- At which ph does lysine have no net charge , given that pk<sub>1</sub>= ,  
pk<sub>2</sub>=11 , pk<sub>3</sub>=9:

Ph=10

86- Any one of the following pairs contain choline base:

(Lecithin, plasmalogens)

87- one of these answers is correct about sphingolipid:

Contain ceramides and polar head

88- Any one of the following answers is early diagnostic :

Genetic disease and TSH

89- The difference between glucose and fructose ?

Isomers different in their atom connectivity

90-Tryptophan

Niacin

91- One of the amino acid responsible for growth and development?

Arginine

92- One of Amino acid not standard ?

Selenocysteine

93- Which of this is a buffer solution ?

CH<sub>3</sub>COO/CH<sub>3</sub>COOH

94- An allosteric activator that attack K<sub>m</sub> but not v-max dose so by?

Allosteric enzyme conformation to promote substrate binding

95- Which type of regulation occurs in the slowest time frame?

New synthesis of enzyme through gene induction)

96- Selective qualities of enzyme are recognized as it's?

Specificity

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100- The main component of synovial fluid?

Hyaluronic acid

101- The thing that make a stabilization ?

chaperones

102- On of the following helps in anticoagulant?

Ca

103- One of the following assist the absorption of Fe ?

Orange juice

104- P+E

SE is negligible

105- The inhibitor that can either bind to enzyme or enzyme substrate complex is? **Non competitive inhibitor**

106- One of the following Amino Acids is found in turns and known as the breaker?

Glycine

107- The longest chain of those Fatty acid?

(Lignoceric)

108- Which Amino Acid give yellow color when interact with ninhydrin?

(Proline)

109- In your opinion, what is the most dangerous (worst) thing could you do in the laboratory?

110- Which of the following standard amino acid will carry a charge of (+1) when dissolve in a highly acidic PH value?

111- What is wrong (Not True) about Gliadin?

Soluble in water

112- What is True about buffer solution:

“when the PH equal pk the concentration of weak acid is equal to concentration of conjugate base “

113- Which of the following is True about the anabolic process that degrade macromolecule?

- a. It`s energy requiring process
- b. It`s synthetic process
- c. Condensing

114- Which is not True?

- a. The abnormality in molecules always cause a disease
- b. Deficiency in a substances doesn`t mean causing a disease
- c. Deficiency or excess in a substance always means having a disease
- d. Abnormality in cells doesn`t mean causing a disease

117- Which part of the micrometer should be calibrated regularly?

“volume knob adjuster and plunger”

118- Which types of polysaccharides found in plants?

“Starch and Cellulose”

119- What is the result when (phospholipid lipase A2) work on

(Lecithin)? “Fatty Acid+ Lysolecithin”

120- Which of the following Lipid has the least density and has the largest amount of TG is?

“Chylomicron”

121- How does water move upwards from root to the leaves in the plant?

(which characteristic allow water to flow from plant`s root to the leaves)?

“high cohesion due to hydrogen bond”

122- The stabilization of tertiary structure? (All of the following participate in stabilization of tertiary structure except)

“Peptide bond”

123-Which of the following is related to pleated sheet? (which bond is found only in pleated sheets)?

“Hydrogen bond between interaction”

124- A patient has continued bleeding , which type of vitamins is needed ?

Vitamin k

125- Which of the following is non polar amino acids ?

Glycine

126- A patient has normal amount of 25(OH)D<sub>3</sub>,but has low amount of calcitriol ,what is the reason ?

Inherited defect in the conversion of 25(OH)- D<sub>3</sub> to calcitriol

127- which of the following is amino acid derivatives ?

Sertonin

128- What are the major lipid components of lung surfactants?

Dipalmitoyl lecithin

129- In the Triglyceride when the number of carbons in the hydrocarbon chain increases, the melting point become?  
Increases

130- One of these fatty acids has omega 3 in its structure?  
Linolenic acid

131- What is the Ceramide?  
Sphingosine connected by an amide linkage to a fatty acid

132- one of the following is true about collagen ?  
Is made up of three polypeptides that are twisted around one another in a rope-like triple-helix

133- what are the structure of Lactose “milk sugar” ?  
Glucose & galactose

134- one of these is single molecule ?  
sphingosine-1-phosphate

135- the process which is convert folate to THF ?  
Folate reduction

136- vitamin D-resistant rickets caused by ? absence of calcitriol receptor calculate PI of lysine when  $pK_1=6.00$  ,  $pK_2=3.58$  ,  $pK_3=4.00$ ?  
3.79

137- the wrong statements about D-gluconic acid is ?  
Has aldehyde group

138- the vitamin which contain cobalt ?  
B12

139- Mad cow disease is the same of ?

Bovine spongiform encephalopathy

140- If (y-s-h-u-c-w) was a sequence of enzyme reactions and x is the key regulatory enzyme to the reaction , the true statement is ?

-w is negative modulator to x ~~

-w is positive modulator to x

- S and H are negative modulators

141- how the iron is transferred to the cells ?

-By binding to transferrin

142-what is given to patient who has gall bladder stones ? -

chenodeoxycholate

143- which one of the following factors decrease the absorption of calcium ?

-high pH

144-which one of the vitamins would be deficient if someone took antituberculosis drug for prolonged period ?

-B3 and B6

145-what increases the absorption of iron when eating mansaf ?

-milk -lemon juice~~ -tea -coffee -water

146- what the denaturation means ?

147-what is the effect of the uncompetitive inhibitor on the line weaver plot ?

-changes the x-axis and y-axis intercepts

148- the enzyme activity rate is controlled by its concentration , which of the factors can be controlled ?

-RNA turns overs and protein synthesis 149-Affinity is represented by by ?

-K1 + K2+ K-1+ K-2

-Km ~~

-Vmax

-

Vmax/Km

150-which one of these isn't an acidic amino acid/not positively charged ? glutamate -glutamic acid -aspartate -aspartic acid - glutamine ~~

151-what is the iso electric point ?

-pH at which the amino acid /protein is neutral

152-which one of these used to preserve an enzyme in the inactive form for one week ? -freezing

53-how does a graph of reaction rate on y-axis and pH on x-axis look like

upward slope followed by downward slope

54-which one of these contains galactose in its structure ?

Keratan and lactose

155- which one of these is least likely to be affected by change of pH?

-primary structure of protein

156-which one isn't true about lactose ?

-galactose can be beta or alpha

157-what is the relationship between starch and cellulose ?

-starch is alpha glucose and cellulose is beta glucose

158-which one of these isn't occurring homoglycan ?

-chitosan~~ -cellulose - starch -chitin -glycogen

159-which one of these enzymes matches its function ?

-synthetase joints two substrates

160- the simplest amio acid is ?

-glycine

161- amino acid not optically active because the R group is ..? -glycine ,

H

162-one of these polysaccharides in hetero ?

-starch -chitin - cellulose - chitosan

163-this is the result of electrophoresis of plasma protiens , the red line represents the ?



-gamma globulins

164-which is the type of bond between p and H ?

-covalent bond

165- which vitamins are important in synthesis of calcium absorbing proteins ?

-calcitriol and manganese

166-what causes Alzheimer disease ?

-accumulation of beta amyloid

167- Fe<sup>2+</sup> oxidized to Fe<sup>3+</sup> by ?

-ceruloplasmin

168-thin layer chromatography , what is the stationary phase and mobile phase ?

solid , liquid in respect

169-which chromatography uses a solid stationary phase (silicon based) and inert helium ?

-gas chromatography

170-which the basic principle of chromatography ?

-the use of stationary phase and mobile phase 171-which of these is the most hydrophobic ?

-cholesteryl palmitate~~~ - the other options were the four bile acids

172-what best describes vitamin E?

-Lipid soluble , antioxidant

173-what results from reduction or oxidation of glucose ?

-glucuric      -glucurinic      -sorbitol~~      - ribitol

174-A patient has symptoms of rickets, and low levels of 25-hydroxy calcifirol and high levels of 1, 25 dihydroxycalciferol, what is the problem causing his symptoms ?

- Calcifirol receptors not working

175-If someone is deficient in B9 but has a good supply of B12, which of these reactions will not be affected/reduced?

-Methyl malonic to succinyl CoA

176-CH<sub>3</sub>COOH has pKa=4.36 what is the most prominent form if it is added to a solution with pH=3?

-CH<sub>3</sub>COOH

177-Solution has pH= 6, [HA] =4, [A-] =4, what is the pKa?

-6

178- a patient has deficiency in the folic acid , Which reaction will not affecte?

-Converting L-mrthylmalonyl to succinyl coA

179-Which of the following is paired wrongly ?

-5 deoxy adenosyl cobalamin functions in methionine synthesis

180-The child has normal level of 1,25 (OH)<sub>2</sub> and has rickets , the right statement is ?

-There's a problem in the calcitriol receptor

181-Which of the following can reduce rate of reaction

- Increase in Substrate concentration
- Increase in enzyme concentration
- Increase temp. to optimum .
- Increase pH to optimum
- increase product concentration

182- a person suffers in problems on eyes .

- deficiency of vit.A

183-Which of the following can't be used as buffer system?

- OH- and H<sub>3</sub>O<sup>+</sup>

184-Carbohydrate that promotes Ca<sup>2+</sup> absorption is?

Lactose

185-In the case of coagulated protein, which of the following is false

- viscosity decrease ~~
- becomes digestible
- become non functioning
- becomes denatured
- becomes insoluble

186-All of the following contain fatty acids except?

-Retinyl ester

-Cardiolipin

-TAG

-Gangliosides

-Testosterone

187-Which of the following is not included in ATP production?

-NADP

188-Most common iron source in "Jordanian diet" is?

- Red meat

189- $pK_a=4.3$  , Acid  $CH_2OOH$  in  $pH=3$  will be in what form?

- $CH_3COO^-$

190-Reaction that doesn't include ATP production?

-CoA  $\rightarrow$  succinic CoA

191-True Process converts vitamin to coenzyme?

-Niacin  $\rightarrow$  adenylation

192-Type of inhibition where the inhibitor can bind on E or ES complex?

-Non-competitive inhibition

193-Which of the following is present in mast cells?

- Heparin

194-Which of the following is false about haeworth and cyclic sugar ?

-Carbonyl carbon becomes chiral center

-The two cycles are called anomers

-Haeworth projection is 3d of amino acids and carbohydrate

-Either c1 or c2 can be anomeric carbon~~

-The source of the oxygen is the hydroxyl oxygen of the second monomer

وفقكم الله جميعًا  
إعداد : لجنة الطب والجراحة

