



# **CHEMISTRY**

# **BOOKS - CENGAGE CHEMISTRY (ENGLISH)**

# BIOMOLECULES



1. Distinguish between lpha-D-gluecop-yranose (I) and

methyl  $\alpha - D$ -gluocopyranoside (II).

**2.** Write the structures obtained by the epimerisation of  $\alpha - D$ -gluocose at C - 2, C - 3, and C - 4(OH) groups.



**3.** Explain, in neutral or basic aqueous solution, glycosides do not show mutarotation, but in acidic medium they show mutarotation.



4. Complete the following reactions:

(a).  $OCH - (CHOH)_4 CH_2 Oh \xrightarrow{5HIO_4}$ 



**5.** (a). Glucose and fructose form the same osazone, what does it prove?

(b). Why more than  $3molofPhNHNH_2$  do not react with glucose and fructose and how does  $PhNHNH_2$ , which is a powerful reducting agent, act as an oxidising agent in this case?



## 6. Complete the following reactions





7. (a). Why is  $eta - D - {\sf gllucopyranose}$  the most abundant of

naturally occurring aldohexoses?

(b). Write the most stable chair conformer for lpha-D-

fructopyranose. How does it dirrer from  $\beta$  – anomer?



8. (a). What is the average molecular mass of starch? (b). What is the approximate average number of glucose units in the sample of starch? ( $Given: 20gmL^{-1}$  of starch has an osmotic pressure  $= 10^{-2}atmat25^{\circ}C.$ )

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**9.** The specific rotation of  $\alpha$  – glucose is +112° and  $\beta$  – glucose is +19° and the specific rotation of the constant equilibrium mixture is +52.7°. Calculate the percentage composition of anomers ( $\alpha$  and  $\beta$ ) in the equilibrium mixture.



10. Give the steps for the conversion of  $D-{
m glucose}$  to  $D-{
m glucose}$ 

fructose and vice versa.

**View Text Solution** 11. Explain why aldoses react with bendict's solution and

 $PhNHNH_2$ , but not with  $NaHSO_3$ .



**12.** A tripeptide oon complete hydrolysis gives glycine, alanine, and phenylanine, using three-letter symbols write down the possible sequences of the tripeptide.



**13.** A dipetide on hydrolysis gives two amino acids.

(A) $NH_2CHCOOH$  and (B) $H_2NCHCOOH$  R'The dipetide is also hydrolyses by leucine amino peptidase enzyme giving amino acid (B). What is the structure of dipeptide?

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14. Give reason to explain why:

Gases are so easily compressible whereas it is impossible to

compress a solid or a liquid.



**15.** The two samples of DNA, A and B have melting tempreatures  $(T_m)340$  and 350K, respectively. Can you draw any conclusion from this data regarding their base content?



**16.** In *E. coliDNA*, AT/GC ratio is 0.93. If the nimber of moles of adenine in its *DNA* sample is 465, 000, calculate the number of moles of guanine present.

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17. If one strand of DNA has the sequence ATGCTTGA, the

sequence in the complimentary strand would be

**18.** What will be the sequence of bases on mRNA molecule synthesised on the DNA strand, TATCTACTGGA?

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**19.** An unsaturated fatty acid on ozonolysis yields one aldehyde  $H_3C(CH_2)_7CHO$  and an aldehyde monocarboxylic acid  $OHC(CH_2)_7COOH$ . Write down the structure and name of the acid.



**20.** One mole of a naturally occurring fat on hydrolysis with NaOH gave 1mol of glycerol together with sodium palmitate and sodium stearate in 1:2 molar ratio. The molecule of the fat is symmetric. Write down the struceture of the fat.



## Solved Examples

**1.** Convert D-glucopyranose to 2, 3, 4 - triethyl

gluocopynoside.







4. Name the smallest aldose which forms cyclic hemiacetal

and the functional groups are involved in its formation.



5. Give 4 properties of metals.



**6.** Give the structure and IUPAC name of disaccharide, which gives the reactio given below:



Given, (A) does not reduce Fehling's solution and does not

#### mutarotate.



**7.** a. Give a chemical test of starch with  $I_2$ .

b. What is the change in colour, when the test is performed

at high temperature?

c. What structural changes occurs during the change in

reaction conditions?

d. Do amylose and amylopectin give the same colour?

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8. State necessary condition of iron corrosion.



9. When a Mg ribbon is burnt in air, Mg is oxidised or

Reduced?



Justify.



- **11.** Define the terms:
- a. Gene , b. Genetic code,
- c. Transcription, d. Translation
- e. Codond



**12.** List three functions of nucleotides in a cell.

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<b>13.</b> The two strands in DNA are not identical but are complementary. Explain.
<b>Vatch Video Solution</b>

14. Write two main functions of carbohydrate in plants.



**15.** What type of bonding occurs in globular protein?





**17.** Name one reducing and one nonreducing disaccharide.



**18.** Name on fibrous and one globular protein.

19. What is the cause of sickle-cell anaemia?

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 Of the example of a denaured protein.
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**21.** Name a polypeptide hormone which maintains the glucose level in the blood.



**22.** What is a nucleoside?

**23.** What is a nucleoside?

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24. Name the purine bases and pyrimidine bases present in

RNA and DNA.

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25. What are waxes?





**29.** What are basic amino acids? Give one example.



**30.** Name the enzymes that help in the digestion of carbohydrates.

31. Which one of the following is a protein deficiency disease?



32. Arrange the following sugars in the increasing order of

sweetness: glucose, fructose, sucrose.

## **33.** Phospholipids are



**35.** Name two important polysaccharides of *D*-glucose.

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**36.** What is a peptide bond?

**37.** Name the building blocks of proteins.

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<b>38.</b> Write the zwitter ion structure of glycine.
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<b>39.</b> Which enzyme dissolves blood clots in the coronary
arterv?



**40.** name three nucleic acids which are used in protein synthesis.

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<b>41.</b> What are biofuels?
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<b>42.</b> What are the monomers constituting proteins?
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43. Write short notes on the following: (a) Enzyme specificity,

(b) Enzyme inhibition.

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<b>44.</b> What is the effect of $pH$ on the action of enzyme?
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<b>45.</b> What are the functions of nucleic acids ? What are the
structures of sugar molecules present in DNA and RNA.
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**Exercises Concept Application** 



fructose and lactose.



7. What are the hydrolysis products of

(i) sucrose and (ii) lactose?

8. What is the basic structural difference between starch and

cellulose?

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<b>9.</b> What	happedn when D-glucose is treated with the
following	reagents :
(i) HI	(ii) Bromine water (iii) $HNO_3$
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**10.** Write such reactions and facts about glucose which cannot be explained by its open chain structure.

#### Solution Watch Video Solution



11. What are essential and non-essential amino acids? Give

two examples of each type.

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**12.** Define the following as related to proteins:

- (i) Peptide linkage
- (ii) Primary structure
- (iii) Denaturation.



**13.** What are the common types of secondary structures for

proteins?



**14.** What type of bonding helps in stabilising the a-helix structure of proteins?

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**15.** Differentiate between globular and fibrous proteins.

**16.** How do you explain the amphoteric behaviour of amino acids?

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<b>17.</b> What are enzymes?
<b>Watch Video Solution</b>
<b>18.</b> What is the effect of denaturation on the structure of
proteins?
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19. How are vitamins classified? Name the vitamin responsible

for the coagulation of blood.

|--|

**20.** Why are vitamin A and vitamin C essential to us? Give their important sources.

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21. What are nucleic acids? Mention their two important

functions.



22. What is the difference between a nucleoside and a

nucleotide?

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**23.** The two strands in DNA are not identical but are complementary. Explain.

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24. DIFFERENCE BETWEEN DNA & RNA



**25.** What are the different types of RNA found in the cell?



### **Exercises Linked Comprehension**

$$H \xrightarrow{1} OMe \\ H \xrightarrow{2} OH O \\ H \xrightarrow{3} H \\ H \xrightarrow{4} OH \\ H \xrightarrow{5} OH \\ H \xrightarrow{4} OH \\ (\mathbf{D}) + (\mathbf{C}) \\ CH_2OH \\ (A)$$

The name of compound (A) is:

1.

A. Methyl-  $\alpha$  - D - glucofuranoside

- B. Methyl $-\beta D g$ lucofuranoside
- C. Methyl  $\alpha$  D glucopyranoside

D. Methyl
$$-eta - D - \mathsf{g}$$
lucopyranoside

#### Answer: C



The number of moles of  $HIO_4$  required in the above reaction is:

A. One

B. Two

C. Three

D. Four

#### Answer: B



The structure of (B) is:







#### Answer: A

D.




4.

Compound (C) and (D) are:



### **Answer: A**





The name of compound (A) is:

A. Methyl- $\alpha$ -D-glucofuranoside

B. Methyl- $\beta$ -D-glucofuranoside

C. Methyl- $\alpha$ -D-glucopyranoside

D. Methyl $-\beta - D - g$ lucopyranoside

### Answer: A

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The number of moles of  $HIO_4$  required in the above reaction is:

A. One

B. Two

C. Three

D. Four

Answer: B

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The structure of (B) is?





### Answer: C





Compound (C) and (D) are:

COOH СНО a. | and H--OH COOH ĊOOH A.

B.  $\begin{array}{c}
CHO & COOH \\
COOH & CH_2OH
\end{array}$ B.  $\begin{array}{c}
c & COOH \\
c & C & COOH \\
c & C & COH \\
c & C & C \\
c & C & C \\
c & C & C \\
c$ 

### Answer: B

9.

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D-Glucopyranose 
$$\xrightarrow{MeOH/HCl}$$
 (B)  $\xrightarrow{Excess of}$  (C)  
(A)  $\xrightarrow{Me_2SO_4/OH}$   
2,3-Dimethoxy succinic  $\leftarrow \frac{HNO_3}{[O]}$  (D)  $\leftarrow \frac{Dil. HCl}{ICl}$   
acid (E) and  
2,3,4-Trimethoxy glutaric acid  
(F)

Which sta tement (S) is / are correct about (A)?

A. It contains an acetalic linkage.

B. It contains a hemiacetalic linkage.

C. It has a six-membered cyclic ring.

D. It has a  $\delta$ -hemiacetalic linkage.

# Answer: B::C::D

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D-Glucopyranose 
$$\xrightarrow{MeOH/HCl}$$
 (B)  $\xrightarrow{Excess of}$  (C)  
(A)  $\xrightarrow{Me_2SO_4/OH}$   
2,3-Dimethoxy succinic  $\xleftarrow{HNO}$  - (D)  $\xleftarrow{Dil. HCl}$   
acid (E) and  
2,3,4-Trimethoxy glutaric acid  
(F)

Compound (B) is:







D. Both (a) and (b)

Answer: C





# Compound (C) is:







D. All

### Answer: C







# Compound (D) is:







D. Both (a) and (b)

## Answer: D



Which statement(S) is / are correct about the products (E) and (F)?

A. The product (E) is ontained by the breakage of C-4

and C-5 bond of compound (D).

B. The product (E) is obtained by the breakage of C-5

and C-6 bond of compound (D).

C. The product (F) is obtained by the breakage of C-4

and C-5 bond of compound (D).

D. The product (F) is obtained by the breakage of C-5

and C-6 bond of compound (D).

Answer: A::D

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Which statement (S) is / are correct about (A)?

A. It contains an acetalic linkage.

B. It contains a hemiacetalic linkage.

C. It has a six-membered cyclic ring and a  $\delta$ -hemiacetalic

linkage.

D. It has a five-membered cyclic ring and a  $\gamma$ -hemiacetalic

linkage.

### Answer: B::D

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# Compound (B) is:





D. Both (a) and (b)

# Answer: C





# Compound (C) is:





D. All

### Answer: C

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17.

Compound (D) is:



D. Both (a) and (b)

### Answer: D





Which statemetn(S) is / are correct about the products from (D) by path (a) and path (b)?

A. The products by path (a) are obtained by the breakage

of C-3 and C-4 bond of compound (D).

B. The products by path (a) are obtained by the breakage

of C-4 and C-5 and bond of compound (D).

C. The products by path (b) are obtained by the breakage

of C-3 and C-4 bond of compound (D).

D. The products by path (b) are obtained by the breakage

of C-4 and C-5 bond of compound (D).

Answer: A::D

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Compound (B) is:

A. Phenylhydrazone of (A)

B. Osazone (A)

C. Both

D. None

Answer: A





How many moles of  $PhNHNH_2$  react with 1mol(A)?

A. 1

B. 2

C. 3

D. 4

Answer: A





The compound (D) is:

A. Phenylhydrazone of (C)

B. Osazone of (C)

C. Both

D. None

Answer: B

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How manty moles of (C) react with  $1molPhNHNH_2$ 

A. 1

B. 3

C. 2

D. 1/3

Answer: D

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The dipeptide (III) is:

A. Val  $\rightarrow$  Leu

- B. Leu  $\rightarrow$  Val
- C. Gly  $\rightarrow$  Ala
- D. Ala  $\rightarrow$  Gly

#### Answer: A

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The tripeptide (II) is:

A. Gly  $\rightarrow$  Leu  $\rightarrow$  Val

- B. Val  $\rightarrow$  Leu  $\rightarrow$  Gly
- C. Leu  $\rightarrow$  Gly  $\rightarrow$  Val
- D. Val  $\rightarrow$  Gly  $\rightarrow$  Leu

#### Answer: B

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The tetrapeptide (I) is:

A. Gly  $\rightarrow$  Leu  $\rightarrow$  Val  $\rightarrow$  Ala

B. Ala  $\rightarrow$  Val  $\rightarrow$  Gly  $\rightarrow$  Leu

C. Gly  $\rightarrow$  Val  $\rightarrow$  Leu  $\rightarrow$  Ala

D. Ala  $\rightarrow$  Val  $\rightarrow$  Leu  $\rightarrow$  Gly

Answer: D

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26.

Compound 'A' has many functional groups.

B. 2

C. 3

D. 4

# Answer: C



$$\begin{array}{c} \alpha \text{-Amino acid (A)} \xrightarrow{\text{MeOH/HCl}} (B) (C_4H_{10}NO_3Cl) \\ (C_3H_7NO_3) & \downarrow^{\text{PCl}_5} \\ (D) (C_3H_6NO_2Cl) & \xleftarrow{\text{H}_3O^{\oplus}} (C) (C_4H_9NO_2Cl_2) \\ & \downarrow^{\text{Na}-\text{Hg/HCl}} \\ \text{Alanine} \end{array}$$

# Compound (B) is:

27.

A. a. 
$$\stackrel{\ominus}{Cl} \stackrel{\oplus}{\underset{NH_3}{\oplus}} \stackrel{OH}{\underset{COOMe}{\longrightarrow}}$$



### Answer: A



$$\alpha-\text{Amino acid (A)} \xrightarrow{\text{MeOH/HCl}} (B) (C_4H_{10}NO_3Cl) \\ (C_3H_7NO_3) \qquad \qquad \downarrow^{\text{PCl}_5} \\ (D) (C_3H_6NO_2Cl) \xleftarrow{\text{H}_3O^{\oplus}} (C) (C_4H_9NO_2Cl_2) \\ \qquad \qquad \downarrow^{\text{Na}-\text{Hg/HCl}} \\ \text{Alanine} \\ \textbf{28.}$$

Compound (C) is:



### Answer: B



$$\begin{array}{c} \alpha \text{-Amino acid (A)} \xrightarrow{\text{MeOH/HCl}} (B) (C_4H_{10}NO_3Cl) \\ (C_3H_7NO_3) & \downarrow^{\text{PCl}_5} \\ (D) (C_3H_6NO_2Cl) & \xleftarrow{H_3O^{\oplus}} (C) (C_4H_9NO_2Cl_2) \\ & \downarrow^{\text{Na}-Hg/HCl} \\ \text{Alanine} \end{array}$$

Compound (D) is:

29.







D. Both (b) and (c)

### Answer: A





30.

Account for the acidity of L – ascorbic acid ( $pK_a = 4.21$ ). Which of the following is most acidic H? (Marked in the structure as  $H^a$ ,  $H^b$ ,  $H^c$  and  $H^d$ )

A.  $H^a$ 

 $\mathsf{B}.\,H^b$ 

 $\mathsf{C}.\,H^c$ 

D.  $H^d$ 

# Answer: C

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31.

How many chrial centres are in (G) (L-ascorbic acid) ?

A. 1

B. 2

C. 3

D. 4

Answer: B



If the lacetone formation in compound (G) takes place

between C-1 and C-5, then the structure of (G) can be

represented as:



# Answer: C



D-Glyceraldehyde 
$$\xrightarrow{(i) \text{ KCN}}$$
 Products (B)  
 $(D + E) \xleftarrow{\text{Na/Hg, H_3O^{\oplus}}}$  Products (C)  
 $(D) \xrightarrow{[O]}{\text{HNO}_3}$  Dibasic acid (optically active) (F)  
 $(E) \xrightarrow{[O]}{\text{HNO}_3}$  Dibasic acid (optically inactive) (G)

Two isomeric products are obtained in (B). They are:

# A. Diastereomers

**B.** Anomers

33.

C. C-2 epimer

D. C-3 epimer

### Answer: A::C


D-Glyceraldehyde 
$$\xrightarrow{(i) \text{ KCN}}$$
 Products (B)  
 $\downarrow^{(ii) \text{ Ba}(\text{OH})_2 + \text{H}_2\text{SO}_4}$  Products (B)  
 $\downarrow^{(D + E)} \xleftarrow{\text{Na/Hg, H}_3\text{O}^{\oplus}}$  Products (C)  
 $(D) \xrightarrow{[O]}_{\text{HNO}_3}$  Dibasic acid (optically active) (F)  
 $(E) \xrightarrow{[O]}_{\text{HNO}_3}$  Dibasic acid (optically inactive) (G)  
**34.**

The sequence from (A) to (D + E) is called:

# A. Wohl's method

B. Ruff method

C. Kilian's method

D. Ekenstein method

### Answer: C



D-Glyceraldehyde 
$$\xrightarrow{(i) \text{ KCN}}$$
 Products (B)  
 $(D + E) \xleftarrow{\text{Na/Hg, H_3O^{\oplus}}}$  Products (C)  
 $(D) \xrightarrow{[O]}$  Dibasic acid (optically active) (F)  
 $(E) \xrightarrow{[O]}$  Dibasic acid (optically inactive) (G)

Two isomeric products are obtained in (C) they are:

- A. Both  $\gamma$ -lactones
- B. Both  $\delta$ -lactones
- C. One is  $\gamma$ -lactone and another is  $\delta$ -lactone
- D. None

35.

Answer: A



D-Glyceraldehyde 
$$\xrightarrow{(i) \text{ KCN}}$$
 Products (B)  
 $(D + E) \xleftarrow{\text{Na/Hg, H_3O^{\oplus}}}$  Products (C)  
 $(D) \xrightarrow{[O]}$  Dibasic acid (optically active) (F)  
 $(E) \xrightarrow{[O]}$  Dibasic acid (optically inactive) (G)

The compounds (F) and (G), respectively, are:





С. 📄

36.

D. (IV) and (III)

Answer: A

**1.** *D*-Glucose and *D*-fructose both form the same osazone, Which statements are correct about the above reaciton?

A. Glucose and fructose are epimers.

B. Glucose and fruc tose are anomers.

C. The c onfigurations of the OH group at C-3 and c-4 in

glucose and fruc tose are same.

D. The configurations of the OH group at C -4 and C-5 in

glucose and fructose are same.

Answer: C::D





2. Give example of two C-2 Epimer.

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**3.** We need to balance an unbalanced skeletal chemical equation justify.



**4.** Which of the following statements are correct about  $\alpha$ -amino acids.

A. All the amino acids which constitute proteins have D-

configuration.

B. Isoelectric point of glycine is 6.1.

C. Valine is an essential amino acid

D. In lpha-amino acids, the basic group is  $\left( - COO^{\Theta} 
ight)$  and

acidic groups is 
$$igg(-\overset{\oplus}{N} H_3igg).$$

Answer: B::C::D

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5. Which of the following exhibit mutarotation?

A. Glucose

B. Maltose

C. Frctose

D. Galactose

Answer: A::B::C::D

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6. Invert sugar is laevorotatory. True/False

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7. What happens when Sodium Sulphate reacts with Barium

Chloride solution.



8. The smallest aldose which is able to form cyclic hemiacetal

is / are:

A. D-glyceraldehyde

B. D-Erythrose

C. D-Threose

D. D-Ribose

Answer: B::C

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9. Non Metallic oxides plus base is equal to ......

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**13.** Which of the following pairs are C - 2 epimers?

A. Allose, Altrose

B. Glucose, Mannose

C. Both of these

D.

Answer: A::B::C::D

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14. Which of the following pairs form the same osazone?

A. Glucose, Fructose

B. Glucose, Mannose

C. Ribose, Arabinose

D. Mannos4e, Fructose

# Answer: A::B::C::D

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**15.** D-Glyceraldehyde and L-Glyceraldehyde are C-2 epimers

as well as enantiomers?

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16. Which statements (s) is / are correct about sucrose?

A.  $(C_1 - lpha)(OH)$  of glucopyranose is linked with

 $(C_{2(-\beta)(OH)})$  of fructofuranose.

B.  $(C_1 - \alpha)(OH)$  of glucopyranose is linked with

 $(C_2 - \beta)(OH)$  of fructopyranose.

C. It reduces Fehling's solution.

D. It exhibits mutarotation.

#### Answer: A

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17. Which statements are correct about sucrose?

A. IUPAC name of sucrose is  $\alpha$ -D-glucopyranosyl- $\beta$ -D-

fructofuranside.

B. IUPAC name of sucrose is  $\beta$ -D-fructofuranosyl- $\alpha$ -D-

glucopyranoside.

C. It is hydrolysed both by emulsin and amylase.

D. On hydrolysis, the solution is laevorotatory.

## Answer: A::B::C::D

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18. Which statements are correct about sucrose?

A. On complete methylation with  $Me_2SO_4/NaOH$ , it forms an octa-o-methyl product.

B. On complete acetylation with  $Ac_2O/NaOAC$ , it forms

a hexaacetate product.

C. On complete acetylation with  $Me_2SO_4/NaOH$ , it

forms hexa-o-methyl product.

D. On complete acetylation with  $Ac_2O/NaOAC$ , it forms

octa-acetate product.

### Answer: A::D



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A.  $(C_1 - \beta)(OH)$  of glucose is linked with  $(C_4 - OH)$  of

galactose.

B.  $(C_1 - \beta) - (OH)$  of galactose is linked with

 $(C_4 - OH)$  of eta-glucose.

C. It is hydrolysed both by amylase and lactase.

D. It exhibits mutarotation.

Answer: B::D

20. Which statements are correct about lactose?

A. IUPAC name of lactose is  $\beta$  – galactopyranosyl- $\beta$ -D-

B. IUPAC name of lactose is  $\beta - D$ -glucopyranosyl  $\beta - D$ -

galactopyranoside

glucopyranoside.

C. On methylation with MeOH/HCl, it gives methyl- $\beta$ -

D-glactopyranosyl-  $\beta$ -D-glucopyranoside.

D. On methylation with MeOH/HCl, it gives methyl-  $\beta$ -

D-glucopyranosyl- $\beta$ -D-galactopyranoside.

Answer: A::B::C

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21. Give Remedy of Bee sting pain.



**23.** How many base pairs in the gene are needed to code for the enzyme lysozyme, containing 129 amino acids, found in

A.  $3 \times 129$ B.  $(3 \times 129) + (3 \times 2) = 393$  base pairs C.  $(3 \times 129) + (3 \times 3) = 396$  base pairs D.  $4 \times 129$ 

#### **Answer: B**



24. Which of the following contain disulphide linkages?

A. Oxytocin

B. Vasopressin

C. Insulin

D. Haemoglobin

### Answer: A::B::C

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25. Globular proteins are present in:

A. Eggs

**B.** Muscles

C. Keratin

D. Blood

Answer: A::D







**27.** A mixture of three protiens, (A) (pepsin), (B) (haemoglobin), and (C) (lysozyme) was seperated by elctrophoresis method at pH = 7. The pH at isoelectric point (pI) of the proteins are pI of (A), (B), and (C) which are 1.1, 6.7, and 11.0, respectively. which of the statement are correct?

A. Pepsin (A) will migrate to the cathode.

B. Lysozyme (C) will migrate to the anode.

C. Haemoglobon will not migrate.

D. At pH=7, (A) and (C) would precipitate out while (B)

would remain in the solution.

Answer: A::B::C

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**28.** Which statements are correct about the mixture of lysine pI = 9.6) and glycine (pI = 5.97), sparated by electrophoresis method or by solubility method?

A. At pH = 5.97, glycine does not migrate while lysine

moves to the cathode.

B. At pH = 5.97, glycine does not migrate while lysine

moves to the anode.

C. At pH = 9.6, lysine does not migrate while glycine

moves to the anode.

D. At pH = 5.97 of the mmixture of the solution, glycine

precipitates out while lysine remains in the solution.

Answer: A::C::D

1



**29.** The structure of a basic amino acid, lysine, is given below:

\

The  $pK_{a_1}, pK_{a_2},$  and  $PK_{a_3}$  of (A), respectively, are:

2.18, 8.95, and 10.53.

What is the pH at isoelectric points (pI)?

A. 
$$rac{pK_{a_1}+pK_{a_2}}{2}$$
  
B.  $rac{pK_{a_1}+pK_{a_3}}{2}$   
C.  $rac{pK_{a_2}+pK_{a_3}}{2}$   
D.  $rac{pK_{a_1}+pK_{a_2}+pK_{a_3}}{3}$ 

#### Answer: C



30. Which statementsare correct?

A. Lactose is a disaccharide and is a reducing sugar.

B.  $\alpha$ -D-glucopyranoside and  $\beta$  - D-glucopyranose are

anomers.

C. Methyl  $-\alpha$ -D-glucopyranoside has an acetal structure

and is a non-reducing sugar.

D.  $\alpha$ -D-Glucopyranose has a hemiacetal structure and is a

reducing sugar.

Answer: A::B::C::D

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**Exercises Single Correcttype** 

1. The main structure feature of proteins is

A. Ether linkage

B. Ester linkage

C. Peptide llinkage

D. All the three above

#### Answer: C

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2. Enzymes belong to which class of compounds?

A. Polysaccharides

**B.** Polypeptides

C. Hydrocarbons

D. Polynitro hetcrocyclic compounds

### Answer: B

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**3.** Glucose reacts wih acetic anhydride to form:

A. Monoacetate

B. Tetra-acetate

C. Penta-acetate

D. Hexa-acetate

### Answer: C



4. Which one of the following chemical units is certainly to

### be found in enzymes ?





(c)







### Answer: C



5. The function of enzymes in .the living system is to

A. Transport oxygen

B. Provide immunity

C. Catalyse biochemical reactions

D. Provide energy

#### Answer: C

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6. In DNA, the complimentary bases are

A. Uracil and adenine: cytosine and guanine

B. Adenine and thymine: guanine and cytosine

C. Adenine and thymine: guanine and uracil

D. Adenine and guanine: thymine and cytosine

#### Answer: B

7. Glucose molecules reacts with 'X' number of molecules of

phenyl hydrazine to yield osazone. The value of 'X' is

A. Three

B. Two

C. One

D. Four

Answer: A



8. Vitamin A is called

A. Ascorbic acid

B. Retinol

C. Calciferol

D. Tocopherol

#### Answer: B

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9. Carbohydrate which is an essential constituent of plants

cells is

A. Starch

B. Cellulose

C. Sucrose

D. Vitamins

### Answer: B



**10.** The hormone which controls the process of burning of fats, proteins, and carbohydrates and liberates energy in the body is:

A. Thyroxine

B. Adrenaline

C. Insulin

D. Cortisone

Answer: C



**11.** Which one of the following has magnesium ?

A. Chlorophyll

B. Haemocyanin

C. Carbonic abhydrase

D. Vitamin  $B_{12}$ 

Answer: A



**12.** Vitamin  $B_1$  is:

A. Riboflavin

B. Cobalalmin

C. Thiamine

D. Pyridoxine

Answer: B

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**13.** The deficiency of vitamin C casuse:

A. Scurvy

**B. Rickets** 

C. Pyrrohea

D. Pernicious anaemia

## Answer: A

**Watch Video Solution** 

**14.**  $\alpha$ -D(+)-glucose and  $\beta$ -D(+) glucose are

A. Enantiomers

**B.** Geometrical

C. Epimers

D. Anomers

Answer: D

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15. Sanger's reagent is used for the identification of:

- A. N- terminal of a peptide chain
- B. C terminal of a peptide chain
- C. Slide chain of amino acids
- D. Molecular weight of the peptide chain

#### Answer: A



**16.** The number of tripeptides formed by three different amino acids is:

A. Three

B. Four

C. Five

D. Six

Answer: D



17. Which structural feature distinguishes proline from other

natural  $\alpha$  – amino acids?

A. It is optically inactive.

B. It contains armatic group.

C. It is a dicarboxylic acid

D. It has a secondary amine.
# Answer: D

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18. Which is correct statement?

A. Starch is a plymer of  $\alpha$  – glucose.

B. Amylose is a component of collulose.

C. Proteins are composed of only one type of amino acids.

D. In cyclic structure of furnaose, there are four carbon

atoms and one oxygen atom.

Answer: A

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**19.** Which statement is incorrect about peptide bond  $\begin{array}{c} O\\ -\overset{||}{C}-\overset{||}{N}H-?\end{array}$ 

A. (C - N) bond length in proteins is longer than the usual bond length of (C - N) bond,

B. Spectroscopic analysis shows planar structure of (CO - NH) group.

C. (C-N) bond length in proteins is smaller than usual

bond length of (C - N) bond.

D. None of the above.\

Answer: A

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20. The vitamins absorbed from the intestine along with fats

are:

A. A, D

 $\mathsf{B}.\,A,\,B$ 

 $\mathsf{C}.A,C$ 

 $\mathsf{D}.\,D,\,B$ 

Answer: A

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**21.** The functional group which is found in amino acid is:

 $\mathsf{A.}-COOH$ 

 $B. - NH_2$ 

 $C. - CH_3$ 

D. Both (a) and (b)

Answer: D



22. Complete hydrolysis of cellulose gives:

A. *L*-Glucose

B. *D*-Fructose

C. D-Ribose

D. *D*-Glucose

# Answer: D

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**23.** The reason for double helical structure of DNA is the operation of:

A. Electrostatic attractions

B. van der Waals forces

C. Dipole-dipole interactions

D. Hydrogen bonding

Answer: D

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24. Chargaff's rule states that in an organisms

- A. The amount of adenine (A) us equal to that of thymine (T) and the amount of guanine (G) is equal to that of cytosine (C).
- B. The amount of adenine (A) is equal to that of thymine (T) and the amount of guanine (G) is equal to that of cytosine (C).
- C. The amount of adenine (A) is equal to that of cytosine
  - (C) and the amount of thymine (T) is equal to that of guanine (G).
- D. The amounts of all bases are equal.



# 25. Subunits present in haemoglobin are

- A. 2
- B. 3
- C. 4
- D. 5

# Answer: C



26. Among the following, the achiral amino acids is

A. Ethylalanine

B. Methylglycine

C. 2-Hydroxymethylserine

D. Tryptophan

Answer: C

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27. The hormone that helps in the conversion of glucose to

glycogen is

A. Cortisone

B. Bile acids

C. Adrenaline

D. Insulin

### Answer: D



28. The enzyme which hydrolyses triglycerides to fatty acids

and glycerol is called

(a) pepsin

(b) lipase

(c) maltase

(d) zymase

A. Maltose

B. Lipase

C. Zymase

D. Pepsin

### Answer: B



**29.** The correct statement in respect of proteins haemoglobin is that it

A. Functions as a catalyst for biological reactions.

B. maintains blood sugar level.

C. acts as an oxygen carrier in the blood.

D. forms antibodies and offers resistance to disease.

### Answer: C

**30.** Which one of the following structures represents the peptide chain :-

D.



#### Answer: C

**31.** Number of chiral carbon atoms in  $\beta$ -D-(+)-glucose is

A. 5 B. 6 C. 3

D. 4

Answer: A

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32. The helical structure of proteins is stabilised by

A. Dipeptide bonds

B. Hydrogen bonds

C. Ether bonds

D. Peptide bonds

Answer: B



**33.** Insulin production and its action in human body are responsible for the level of diabetes. This compound belongs to which of the following catefories:

A. A coenzyme

B. A hormone

C. An enzyme

D. An antibiotic

### Answer: B

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**34.** Which base is present in RNA but not in DNA?

A. Uracil

B. Cytosine

C. Guanine

D. Thymine

Answer: A



35. The nucleic acid base having two possible binding sites is

A. Thymine

B. Cytosine

C. Guanine

D. Thymine

Answer: C

**Watch Video Solution** 

**36.** Carbohydrates are stored in human body as the polysaccharide

A. Starch

B. Glucose

C. Glycogen

D. Galactose

Answer: C



**37.** An alteration in the base sequence of nucleic acid molecule is:

A. Relication

**B.** Mutation

C. Duplication

D. Dislocation

# Answer: B

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**38.**  $\alpha$  and  $\beta$  -glucose differ in the orientation of OH goup around

A.  $C_1$ 

 $\mathsf{B.}\,C_2$ 

C.  $C_3$ 

 $\mathsf{D.}\,C_4$ 

# Answer: A

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39. Which functional group participates in the disulphide

bond formation in proteins?

(a)Thiolactone

(b)Thiol

(c)Thioether

(d)Thioester

A. Thioether

B. Thiol

C. Thioester

D. Thiolactone

Answer: B



**40.** I both DNA and RNA, heterocyclic base and phosphate ester linkages are at

- A.  $C_5$  and  $C_2$ , respectively, of the sugar molecule.
- B.  $C_2$  and  $C_5$ , respectively, of the sugar molecule.
- C.  $C_1$  and  $C_5$ , respectively, of the sugar molecule.
- D.  $C_5$  and  $C_1$ , respectively, of the sugar molecule.

#### Answer: C

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**41.** Which one of the following biomolecules is insoluble in

water?

A.  $\alpha$  – Keratin

B. Haemoglobin

C. Ribonuclease

D. Aldenine

Answer: A

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42. For protein synthesis (translation) the third base of the

codon is less specific. True/False.



43. Which of the following is not produced by human body?

A. Enzymes

B. DNA

C. Vitamins

D. Hormones

Answer: C

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44. During the process of digestion , the proteins present in

food materials are hydrolysed to amino acids.

The two enzymes involved in the process

proteins  $\xrightarrow{\text{enzymes}(A)}$  polypeptides  $\xrightarrow{\text{enzymes}(B)}$  amino

acids.are respectively

- A. Invertase and zymase
- B. Amylase and maltase
- C. Diastase and lipase
- D. Pepsin and trypsin

### Answer: D



**45.** The pair in which both species have iron is

- A. Nitrogenase, cytochromes
- B. Carboxypeptidase, haemoglobin
- C. Haemoglobin, nitrogenase
- D. Haemoglobin, cytochromes

# Answer: D

**O** Watch Video Solution

46. Thymine is

- A. 5 Methyluracil
- ${\rm B.4-Methyluracil}$
- ${\rm C.}\,3-{\rm Methyluracil}$
- D.1 Methyluracil

### Answer: A



47. Lysine is least soluble in water in the pH range

A. 3 to 4

B. 5 to 6

C. 6 to 7

D. 8 to 9

Answer: D



**48.** Methyl- $\alpha$ -D-glucoside and methyl- $\beta$ -D-glucoside are

A. Epimers

**B.** Anomers

C. Enantiomers

D. Conformational diastereomers

### Answer: B

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**49.** In addition to an aldehyde group, glucose contains:

A. One secondary and four primary OH groups.

B. One primary and four secondary OH groups.

C. Two primary OH and three secondary OH groups.

D. Three primary OH and two secondary OH groups.

#### Answer: B

**50.** At pH = 4, glycine exists as:

A. 
$$H_3 \overset{\oplus}{N} - CH_2 CO \overset{\Theta}{O}$$
  
B.  $H_3 \overset{\oplus}{N} - CN_2 COOH$   
C.  $H_2 NCH_2 COOH$   
D.  $H_2 NCH_2 CO \overset{\Theta}{O}$ 

Answer: B



**51.** Biotin is an organic compound present in yeast. Its deficiency in diet causes dermatitis and paralysis. It is also

known as:

A. Vitamin  ${\cal H}$ 

B. Vitamin  $B_1$ 

C. Vitamin  $B_{12}$ 

D. Vitamin D

Answer: A



52. The efficieny of an enzyme in catalyzing a reaction is due

to its capacity

A. Reduced the activation energy of the reaction.

B. Form strong enzyme-substrate complex.

C. Decrease the bond energies of all the substrate

molecules.

D. Increase the free energy of the catalyst-substrate

reaction.

Answer: A

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53. Glucose reacts with excess of phenylhydrazine and forms

A. Glucosazone

B. Glucose phenylhydrazone

C. Glucose oxime

D. Sorbitol

# Answer: A

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**54.** The term anomer of glucose refers to:

A. Isomers of glucose that differ in configuration at carbons one and four (C-1 and C-4).

B. A mixture of D – glucose and L – glucose.

C. Enantiomers of glucose.

D. Isomers of glucose that differ in configuration at

carbon one (C-1)

Answer: D

55. The pyrimidine bases present in DNA are

A. Cytosine and adenine

B. Cytosine and gunine

C. Cytosine and thymine

D. Cytosine and uracil

#### Answer: C

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56. Hydrolysis of lactose with dilute acid yields:

A. Equimolar mixture of D - glucose and D - glucose.

B. Equimolar mixture of D – glucose and D – galactose.

C. Equimolar mixture of D -glucose and D -fructose.

D. Equimolar mixture of D- galactose and D-

galactose.

Answer: B

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**57.** Cellulose is a straight-chain polysaccharide composed of only:

- A. D Glucose units joined by  $\alpha$  glycosidic linkage.
- B. D Glucose units joined by  $\beta$  glycosidic linkage.

C. D – Glucose units joined by  $\alpha$  – glycosidic linkage.

D. D – Glucose units joined by  $\beta$  – glycosidic linkage.

### Answer: B



58. Which one of the amino acids can be synthesised in the

body?

A. lysine

**B.** Histidine

C. Valine

D. Alanine

#### Answer:



59. Sucrose on hydrolysis gives:

A. Glucose+Glucose

B. Glucose+Galactose

C. Glucose+Fructose

D. Glucose+Lactose

Answer: C

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**60.** The  $\alpha$ -amino acid which contains the aromatic side chain

A. Proline

B. Tyrosine

C. Valine

D. Tryptophan

Answer: D

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**61.** Which of the following is a female sex hormone?

A. Adrenaline

**B.** Esterone

C. Cortisone

D. Testosterone

# Answer: B

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**62.** The chemical extracted from the plant Rauwolfia sepentina is:

A. Aspirin

B. Quinine

C. Bithional

D. Reserpine

Answer: D

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63. Which of the following is a plant growth inhibiter?

A. Heteroauxin

**B.** Gibberrellins

C. Cytokinnis

D. Abscisic acid (ABA)

**Answer: D** 



64. The first sex attractant pheromone identified was that of

A. Cat

B. Dog
C. Gypsy moth

D. Human

Answer: C

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65. To separate a mixture of monosacharides, you would use

A. Centrifuge

B. Chromatography

C. Mass spectometer

D. Electrolytic cell

Answer: B



66. Which of the following carbohydrate cannot be digested

by human body?

A. Glucose

**B.** Sucrose

C. Glycogen

D. Cellulose

Answer: D



**67.** The Ruff degradation used to reduce the carbon the carbon chain in an

A. Alcohol

B. Alkene

C. Ketose

D. Aldose

Answer: D

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**68.** The Kiliani's synthesis is used to increase the carbon chain in:

A. Acid

B. Alcohol

C. Aldose

D. Ketose

Answer: C

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**69.**  $\alpha - D -$ glucose and  $\beta - D -$ glucose are enantiomers.

True/False

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70. Choose the incorrect statement.

A. Protiens, like fats and carbohydrates, are primarily used

for supplying heat and energy to the body.

B. Proteins differ from fats and carbohydrates in that they

contain nitrogen.

C. Amino acids in proteins have L - configuration.

D. Enzymes are proteins.

Answer: A

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**71.** Which of the following statements is incorrect?

A. Vitamins are included in diet because they are not

synthesised in the human body.

B. Most vitamins fuction as coenzymes.

C. A person with diabetes mellituss suffers from hypoglycemia.

D. Hypoglycemia can affect the brain due to low blood

sugar level.

Answer: C



72. Lactose is made up of:

A. Galactose unit and glucose unit

B. Glucose unit and fructose unit

C. Both glucose units

D. Glucose and arbinose unit

## Answer: A



73. Isoprene units prevail in all the following except

A. Natural rubber

B. Vitamin A

C. Terpenes

D. Vitamin E

Answer: D



**74.** At a certain calue of pH, amino acid does not migrate towards any of the. Electrode under the influence of electric field. This pH is called

A. Eutectic point

B. Neutralisation point

C. Effusion point

D. Isoelectric point

# Answer: D



75. During aerobic respiration, one molecule of glucose

produces:

A. 2ATP molecules

B. 50ATP molecules

C. 38ATP molecules

D. 36ATP molecules

Answer: C

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76. The chemical substance which acts as emulsifier is:

A. Phosphoric acid

B. Fatty acid

C. Bile acids

D. Mineral acids (HCl)

# Answer: C

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77. If the sequence of bases in one strand of DNA is ATGACTGTC then the sequence of bases in its complementary strands is:

A. TACTGACAG

B. TUCTGUCCUG

C. GUAGTUAUG

D. None of the above

Answer: A



**78.** The RNA which takes part in the synthesis of proteins is:

A. m - RNA

B. r - RNA

C.t - RNA

D. All the above

Answer: D

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**79.** Mark the incorrect statement about ATP.

A. It is a nucleotide.

B. It contains the purine adenine.

C. The enzyme-catalysed hydrolysis of ATP to ADP and

AMP is accompanied by absorption of energy.

D. Energy is stored in the cell in the form of ATP.

Answer: C

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**80.** The sequence in which amino acids are linked to one another in linear sequence in a protein molecule is called its

A. Primary structure

B. Secondary structure

C. Tertiary structure

D. Quaternary structure

## Answer: A



# **Exercises Assertion Reasoning**

1. Statement I: Glycosides mutarotate.

Statement II: The anomeric OH is etherified and the equilibrium with the free carbonyl form is destroyed.

A. Statement I is true, Statement II is true, Statements

*II* is the correct explanation of Statement *I*.

B. Statement I is true, Statement II is true, Statement II

is not the correct explanation of Statement *I*.

C. Statement *I* is true, Statement *II* is false.

D. Statement *I* is false, Statement *II* is true.

Answer: D

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2. Statement I: There is a releatikonship between the ability of a sugar to mutarotate and to reduce Tollens reafent.
Statement II: The reduction of Tollens reafent and mutarotation both depend on the presence of free carbonyl form.

A. Statement I is true, Statement II is true, Statements

*II* is the correct explanation of Statement *I*.

B. Statement I is true, Statement II is true, Statement II

is not the correct explanation of Statement *I*.

C. Statement I is true, Statement II is false.

D. Statement *I* is false, Statement *II* is true.

Answer: A

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3. Statement I: Glucose and fructose both reduce Schiff's

reagent.

Statement II: Both have free carbonyl group.

A. Statement I is true, Statement II is true, Statements

*II* is the correct explanation of Statement *I*.

B. Statement I is true, Statement II is true, Statement II

is not the correct explanation of Statement *I*.

C. Statement I is true, Statement II is false.

D. Statement *I* is false, Statement *II* is true.

Answer: D

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4. Statement I: D-Fructose is used for sweetening cold drinks

but not hot ones.

Statement II: the sweet form is fructopyranose, on increasing

termperature causes or shift in the pyranose  $\Leftrightarrow$  furanose equilibrium towards the less sweet furanose form.

A. Statement I is true, Statement II is true, Statements

*II* is the correct explanation of Statement *I*.

B. Statement I is true, Statement II is true, Statement II

is not the correct explanation of Statement *I*.

C. Statement *I* is true, Statement *II* is false.

D. Statement *I* is false, Statement *II* is true.

#### **Answer: A**



5. Statement I: D-2 – Deoxyglucose reacts with  $3molPhNHNH_2$  and form an osazone.

Statement II: D-2 – Deoxyglucose has no

(C - OH) group  $\alpha$  - to the (C = O) group.

A. Statement I is true, Statement II is true, Statements

*II* is the correct explanation of Statement *I*.

B. Statement I is true, Statement II is true, Statement II

is not the correct explanation of Statement *I*.

C. Statement I is true, Statement II is false.

D. Statement I is false, Statement II is true.

#### Answer: D

**6.** Statement I:  $\beta - D$  – Glucophyranose is the most abundant naturally occuring aldohexoses.

Statement II: All the ring substituents in the chair conformation are equatorial.

A. Statement I is true, Statement II is true, Statements

*II* is the correct explanation of Statement *I*.

B. Statement I is true, Statement II is true, Statement II

is not the correct explanation of Statement *I*.

C. Statement *I* is true, Statement *II* is false.

D. Statement *I* is false, Statement *II* is true.

### Answer: A

7. Statement I: D-3 Deoxyglucose has gfour chiral C atoms.

Statement II: It exists in eight stereoisomers.

A. Statement I is true, Statement II is true, Statements

*II* is the correct explanation of Statement *I*.

B. Statement I is true, Statement II is true, Statement II

is not the correct explanation of Statement I.

C. Statement *I* is true, Statement *II* is false.

D. Statement *I* is false, Statement *II* is true.

Answer: D

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**8.** STATEMENT-1 : Enzymes are protein but protein are not enzymes

and

STATEMENT-2 Enzymes are bio-catalyst and posses a stable configuration having a active site poket.

A. Statement I is true, Statement II is true, Statements

*II* is the correct explanation of Statement *I*.

B. Statement I is true, Statement II is true, Statement II

is not the correct explanation of Statement *I*.

C. Statement *I* is true, Statement *II* is false.

D. Statement *I* is false, Statement *II* is true.

Answer: A



**9.** Statement I: A triester of glycerol with stearic acid on boiling with Aq. NaOH gives solid cake with soapy touch. Statement II: Free glycerol is liberated which is a syrupy reactions.

A. Statement I is true, Statement II is true, Statements

*II* is the correct explanation of Statement *I*.

B. Statement I is true, Statement II is true, Statement II

is not the correct explanation of Statement *I*.

C. Statement I is true, Statement II is false.

D. Statement *I* is false, Statement *II* is true.

Answer: C

**10.** *ATP* is the main source of energy of many anaerobic realations.

Statement II: Anaerobic reactions occur in the presence of oxygen.

A. Statement I is true, Statement II is true, Statements

*II* is the correct explanation of Statement *I*.

B. Statement I is true, Statement II is true, Statement II

is not the correct explanation of Statement I.

C. Statement *I* is true, Statement *II* is false.

D. Statement *I* is false, Statement *II* is true.

Answer: C

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**11.** Assertion:Carboxypeptidase is an exopeptidase Reason:It cleaves the N-terminal bond.

A. Statement I is true, Statement II is true, Statements

*II* is the correct explanation of Statement *I*.

B. Statement I is true, Statement II is true, Statement II

is not the correct explanation of Statement *I*.

C. Statement I is true, Statement II is false.

D. Statement *I* is false, Statement *II* is true.

Answer: C



**12.** Statement-1 : Cellulose is not digested by human beings.

Statement-2 : Cellulose is a polymer of  $\beta - D$ -glucose.

A. Statement I is true, Statement II is true, Statements

*II* is the correct explanation of Statement *I*.

B. Statement I is true, Statement II is true, Statement II

is not the correct explanation of Statement *I*.

C. Statement *I* is true, Statement *II* is false.

D. Statement *I* is false, Statement *II* is true.

Answer: C



**13.** Statement I: Thymine occures in *RNA*.

Statement II: RNA controls the synthesis of proteins.

A. Statement I is true, Statement II is true, Statements

*II* is the correct explanation of Statement *I*.

B. Statement I is true, Statement II is true, Statement II

is not the correct explanation of Statement *I*.

C. Statement *I* is true, Statement *II* is false.

D. Statement *I* is false, Statement *II* is true.

Answer: D



**14.** Statement I: Insulin is a globular protein.

Statement II: It has two polypeptide chains with 21 and 30 amino acids joined by sulhur bridges connecting cysteine amino acid on the two chains.

A. Statement I is true, Statement II is true, Statements

*II* is the correct explanation of Statement *I*.

B. Statement I is true, Statement II is true, Statement II

is not the correct explanation of Statement I.

C. Statement *I* is true, Statement *II* is false.

D. Statement I is false, Statement II is true.

### Answer: A

**15.** D – Fructose with dil. NaOH undergoes a reversible isomerisation and is converted to a mixure of D – glucose, D – mannose and S – fructose.

Statement II: This reaction is known as Lobryde Bruyn-van Ekenstein rearrangement.

A. Statement I is true, Statement II is true, Statements

*II* is the correct explanation of Statement *I*.

B. Statement I is true, Statement II is true, Statement II

is not the correct explanation of Statement *I*.

C. Statement *I* is true, Statement *II* is false.

D. Statement *I* is false, Statement *II* is true.

### Answer: A

**Exercises Archives Single Correct** 

1. Which of the following pair give positive Tollen's Test?

A. Glucose, Sucrose

B. Glucose, fructose

C. Hexanal, acetophenone

D. Fructose, sucrose

Answer: B



2. The two forms of `D-glucopyranose obtained from solution

of D-glucose are known as:

A. Isomer

B. Anomer

C. Epimer

D. Enantiomer

Answer: B

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3. Cellulose upon acetylation with excess acetic anhydride/  $H_2SO_4$  (catalytic) gives cellulose triacetate whose structure



# Answer: A



4. The correct statement about the following disaccharide



A. Ring (a) is pyranose with  $\alpha$  – glycosidic link. B. Ring (a) is furanose with  $\alpha$  – glycosidic link. C. Ring (b) is furanose with  $\alpha$  – glycosidic link. D. Ring (b) is pyranose with  $\beta$  – glycosidic link.

### Answer: A

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5. The correct statement (s) about the following sugars (X)

and (Y) is / are:



A. (X) is a reducing sugar and (Y) is a non-reducing sugar.

B. (X) is a non-reducing sugar and (Y) is a reducing sugar.

C. The glucosidic linkage in (X) and (Y) are  $\alpha$  and  $\beta$ ,

respectively.

D. The glucosidic linkages in (X) and (Y) are  $\beta$  and  $\alpha$ ,

respectively.

Answer: B::C

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**Exercises Archives Assertion Reasoning** 

**1.** Statemet-1 : Glucose gives a reddish-brown precipitate with Fehling's solution.

Statement-2 : Reaction of glucose with Fehling's solution

gives CuO and gluconic acid.

A. Statement I is true, Statement II is true, Statements

*II* is the correct explanation of Statement *I*.

B. Statement I is true, Statement II is true, Statement II

is not the correct explanation of Statement *I*.

C. Statement I is true, Statement II is false.

D. Statement *I* is false, Statement *II* is true.

Answer: C

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**Exercises Archives Analytical And Descriptive** 

1. Alanine, the amino acid the respective structure at pH = 2

and pH = 10 will be

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<b>2.</b> Give the structure of each of the products in the following

reactions:





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3. As partune, an artifical sweetener, is a peptide and has the

following structure:


Identify the four functional groups.

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4. Write down the heteroheneous catalyst involved in the

polymerisation of ethylene.



5. Following two amino acids liosine and glutamine form dipeptide linkage. What are the two possible dipeptides?
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**6.** (a) Draw the structure of  $L - \mathsf{glucose}$ .

(b) Give the reaction of L- glucose with Tollens reagent.



7. Which of the following disaccharides will not reduce

Tollens reagent? 🔊



8. Arrange in the order of increasing acidic strengths.



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