



# CHEMISTRY

## BOOKS - BODY BOOKS PUBLICATION

### BIOMOLECULES

#### Example

1. Sanger's reagent is used for the identification of\_\_\_\_\_.



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2. In biological systems, RNA molecules direct the synthesis of specific proteins. Which are characteristic of each kind of organism. This process is called

A. Mutation

B. Transcription

C. Translation

D. Replication

**Answer:**



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**3. What kind of bonding is responsible for the secondary structure of proteins ?**

- A. Ionic bonding
- B. Covalent bonding
- C. Hydrogen bonding
- D. None of these

**Answer:**



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**4.** What structural features distinguish proline from other natural  $\alpha$ -amino acid?



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**5.** Alpha helix structure is found in

A. Protein

B. Lipid

C. RNA

D. DNA

**Answer:**



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**6. Vitamin Biotin is also known as**

A. Vitamin A

B. Vitamin B

C. Vitamin H

D. Vitamin K

**Answer:**



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**7. Choose the incorrectly matched pair.**

A. Vitamin A - Anaemia

B. Vitamin B - Beriberi

C. VitaminC - Scurvy

D.

**Answer:**



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8. Pernicious anaemia is caused by the deficiency of vitamin

A.  $B_6$

B.  $B_1$

C.  $B_2$

D.  $B_{12}$

**Answer:**



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**9. Which of the bases is not present in DNA?**

A. Uracil

B. Thymine

C. Adenine

D. Guanine



**Answer:**



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10. \_\_\_\_\_ is a union of glucose and galactose.



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11. Observe the relationship between the first two pairs and fill in the blanks,  
Starch:Polysaccharides, Maltose:\_\_\_\_\_.





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**12.** The change in specific rotation of an optically active compound in solution with time ,to an equilibrium value is called\_\_\_\_\_.



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**13.** The pH at which aminoacids move neither towards the cathode nor towards the anode is called\_\_\_\_\_.



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14. Any change in the base sequence of DNA which leads to the synthesis of proteins with altered aminoacid sequence is called\_\_\_\_\_.



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15. Vitamin \_\_\_\_ is responsible for the coagulation of blood .



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**16.** Carbohydrates which yield a large number of monosaccharide units on hydrolysis are\_\_\_\_\_.



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**17.** Name the metal present in:- Vitamine  $B_{12}$ .



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**18.** “Thymine named base is found in RNA’.

State whether this statement is true or false.



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**19.** The efficiency of an enzyme to catalyse a reaction is due to its capacity to



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**20.** In biological systems, RNA molecules direct the synthesis of specific proteins. Which are characteristic of each kind of organism. This process is called



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**21.** What is peptide linkage ?



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**22.** When an egg is boiled Its physical texture changes in its chemical nature. Why?



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**23.** What do you mean by isoelectric point of amino acids?



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**24.** Write a note on vitamins.



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**25.** Name the deficiency diseases resulting from the lack of vitamins A and E in the diet.



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**26.** A disaccharide consist of two  $\alpha$ -D glucose units. Identify the disaccharide and give its molecular formula.



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**27.** A dissaccharide consist of two  $\alpha$ -D glucose units. Identify the type of bonding helps in stabilising the  $\alpha$ - helix structure of proteins.



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**28.** Name the nitrogen bases which are present In RNA and DNA.



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**29.** Classify the following as monosaccharide, oligosaccharide and polysaccharide: Maltose



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**30.** Classify the following as monosaccharide, oligosaccharide and polysaccharide: Glucose



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**31.** Classify the following as monosaccharide, oligosaccharide and polysaccharide: Sucrose



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**32.** Classify the following as monosaccharide, oligosaccharide and polysaccharide: Cellulose



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**33.** Classify the following as monosaccharide, oligosaccharide and polysaccharide: Fructose



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**34.** Classify the following as monosaccharide, oligosaccharide and polysaccharide: Lactose



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**35.** What is the effect of denaturation on the structure of proteins?



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**36.** Give main function of carbohydrates in human system.



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**37.** What do you mean by the secondary structure of proteins?



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**38.** “Without enzymes, living process will be too slow to sustain life”. Do you agree with this statement ?



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**39.** “Without enzymes, living process will be too slow to sustain life”.What are enzymes? Give any two biological process catalysed by enzymes.



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**40.** The deficiency of which vitamin causes night-blindness.



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**41.** Name the vitamin whose deficiency causes:  
Rickets



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**42.** Name the vitamin whose deficiency causes:

Beriberi



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**43.** Glucose is commercially prepared from a polysaccharide, where change in specific rotation occurs. Which is the polysaccharide used for the production of glucose ?



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**44.** All naturally occurring sugars are found to have the D-configuration. Give a reaction to prove that glucose contain five hydroxyl groups.



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**45.** Amylose and amylopection are two components of starch. Give the difference between the two.



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**46.** In sucrose, the glucose and fructose units are held together by glycosidic linkage. Explain glycosidic linkage.



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**47.** Define the following as related to proteins  
(i)Peptide linkage      (ii)Primary structure  
(iii)Denaturation



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**48.** Define the following terms in relation to protein: Glycosidic linkage



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**49.** Glucose is commercially prepared from a polysaccharide. i. Which is the polysaccharide used for the production of glucose? ii. Name the process involved in the formation of glucose in the above method.



**Watch Video Solution**

**50.** Glucose is commercially prepared from a polysaccharide. i. Which is the polysaccharide used for the production of glucose? ii. Name the process involved in the formation of glucose in the above method.



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**51.** What are the hydrolysis products of (a) sucrose (b) lactose



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**52.** What are the hydrolysis products of (a) sucrose (b) lactose



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**53.** Fibrous protein present in hair is elastic while in silk It is not elastic. Explain.



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**54.** Match the following

**Match the following:**

Vitamin A

Starch

Aldohexose

Enzyme

Glucose

Zymase

Night blindness

Amylose

Fructose



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**55.** Match the following structures of protein in column I with their characteristic features in

## column II

### Column I

- (i) Primary structure
- (ii) Secondary structure
- (iii) Tertiary structure
- (iv) Quaternary structure

### Column II

- (a) Spatial arrangement of polypeptide sub units
- (b) Structure of amino acids
- (c) Folding of peptide chains
- (d) Sequence of amino acids
- (e) Fibrous or globular nature



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**56.** What is denaturation of proteins ?



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**57.** Name a fat soluble vitamin, Suggest a diseases caused by its deficiency.



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**58.** What do you mean by the secondary structure of proteins?



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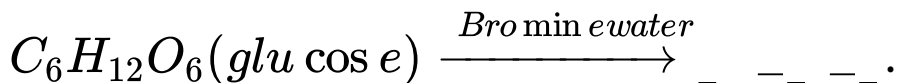
**59.** What do you mean by the Nucleosides ?



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60. Name the products obtained in the following reactions:



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61. Name the products obtained in the following reactions:  $C_6H_{12}O_6 \xrightarrow{HI} \_ \_ \_.$



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**62.** What is invert sugar?



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**63.** Name two poly saccharides.



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**64.** What is denaturation of proteins ?



**Watch Video Solution**

**65.** Proteins are important polymers of biological system. Give two example of denaturation.



**Watch Video Solution**

**66.** Proteins are the polymers of  $\alpha$ - amino acids. The structure and shape of proteins can be discussed at four different levels - namely primary, secondary, tertiary and quaternary

Give an account of structure and shape of proteins considering the above levels.



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**67.** Glucose is a monosaccharide which can be oxidised, reduced and acetylated. What happen when a glucose is treated with  $Br_2$  water



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**68.** Glucose is a monosaccharide which can be oxidised, reduced and acetylated. What happen when a glucose is treated with *HI/redP*.



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**69.** Glucose is a monosaccharide which can be oxidised, reduced and acetylated. What happen when a glucose is treated with acetic anhydride





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**70.** You are given two test tubes containing Pentan-2-one and Pentan-3-one. Describe a test to distinguish between them.



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**71.** An acid functional derivative can be used in preparing Ethanol from Propanol. Suggest which derivative will you use for this and explain the reaction.



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**72.** Explain how can you convert Ethanol to acetaldehyde without further oxidation.



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**73.** Explain how can you convert Ethanol to directly to Acetic acids.



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**74.** Suggest a method to convert Acetic acid to Methyl ethanoate. How can you subject Methyl ethanoate to Saponification and what are the products?



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**75.** A student was asked to convert nitro benzene to benzene. Teacher suggested that he should first treat nitro benzene with Sn and HCl (tin and HCl) and then proceed with the product obtained to get “benzene”. Write



down the reactions involved in the above process.



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



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**77.** Differentiate between nucleoside and nucleotide:



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



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



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**80.** Give three difference between RNA and DNA.



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**81.** Describethefollowingterms in reference to proteins: Primary structures



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**82.** Describe the following terms in reference to proteins: Denaturation



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**83.** How are vitamins classified ? Give two example for each class.



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**84.** Explain the amphoteric behavior of amino acid.



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



**Watch Video Solution**

**86.** The deficiency of which vitamin causes night-blindness.



**Watch Video Solution**

**87.** Give the open chain and ring structures of glucose and account for the existence of glucose in two anomeric forms.



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**88.** Which among the give vitamins is water souluble?

A. A

B. B

C. D

D. E

**Answer:**



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



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**90.** Which of the following is a polysaccharide  
? Maltose, Sucrose, Fructose, Cellulose

A. Maltose

B. Sucrose

C. Fructose

D. Cellulose



**Answer:**



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**91.** Explain the amphoteric behavior of amino acid.



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**92.** Cane sugar, Glucose and Starch are Carbohydrates. Represent the structure of glucose.



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**93.** Write a method to prepare Glucose from starch. Write the chemical equation of the reaction.



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**94.** Suggest any two uses of carbohydrates.



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**95.** Carbohydrates are broadly divided into monosaccharides, oligosaccharides and polysaccharides. Write one example each of monosaccharide and oligosaccharide.



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**96.** Write any one method for preparation of glucose.



**Watch Video Solution**

**97.** What is peptide linkage ?



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**98.** Biomolecules are formed by certain specific linkages between simple monomeric units. Write the names of linkages and monomeric units in the starch class of biomolecules.



**Watch Video Solution**

**99.** Biomolecules are formed by certain specific linkages between simple monomeric units. Write the names of linkages and monomeric units in the protein class of biomolecules.



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**100.** Biomolecules are formed by certain specific linkages between simple monomeric units. Write the name of linkages and

monomeric units in the Nucleic acid class of biomolecules.



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**101.** Proteins are essential for growth in animals. What are the common types of secondary structures of proteins ?



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**102.** Draw the pyranose structure of  $\alpha$ -D (+) Glucose.



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**103.** Amino acids can be classified into essential and non-essential amino acids. What is the basis of such classification ?



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**104.** Amino acids can be classified into essential amino acids and non essential amino acids. Write one example each for essential and non-essential amino acids.



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**105.** Write any two differences between DNA and RNA.



**Watch Video Solution**



**106.** What is denaturation of proteins ?



**Watch Video Solution**

**107.** Proteins are important polymers of biological system. Give two example of denaturation.



**Watch Video Solution**

**108.** Carbohydrates are classified into monosaccharide, oligosaccharides and polysaccharides. What is the basic of such classification ?



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**109.** Carbohydrates are classified into monosaccharides, oligosaccharides and polysaccharides. Give an example of an oligosaccharide?





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**110.** Carbohydrates are classified into three major classes : monosaccharide, oligosaccharide and polysaccharides. What are polysaccharide ?



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**111.** Carbohydrates are classified into three major classes : monosaccharide,

oligosaccharide and polysaccharides. Give two examples of polysaccharide.



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**112.** What is invert sugar?



**Watch Video Solution**

**113.** Proteins are the polymers of  $\alpha$ - amino acids. The structure and shape of proteins can be discussed at four different levels - namely

primary, secondary, tertiary and quaternary

Give an account of structure and shape of proteins considering the above levels.



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**114.** Which one of the following is not a reducing sugar?

A. Glucose

B. Lactose

C. Sucrose

D. Maltose

**Answer:**



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**115.** In aqueous solution, amino acid exist as



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**116.** How are vitamins classified ?



**Watch Video Solution**

**117.** Vitamin \_\_\_\_ is responsible for the coagulation of blood .



**Watch Video Solution**

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



**Watch Video Solution**

**119.** Write two main functions of carbohydrates in plants.



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**120.** Show the steps involved in converting  $CH_3 - NH_2 \rightarrow CH_3 - CH_2 - NH_2$ .



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**121.** What is denaturation of proteins ?





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122. Match the following:

A	B
CFC's	Blue baby syndrome
Oxides of nitrogen	Kidney damage
Cadmium	Eutrophication
Nitrates	Ozone depletion
	Red haze in the traffic



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