

# CHEMISTRY

## BOOKS - OMEGA PUBLICATION

### BIOMOLECULES

#### Questions

1. Express the following numbers to four significant figures : 0.008837



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2. Give different uses of carbohydrates.



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3. Name two carbohydrates which act as biofuels.



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4. Name the enzyme which converts sucrose into glucose and fructose.



**Watch Video Solution**

5. Name the enzyme which converts glucose into alcohol.



**Watch Video Solution**

6. Name the enzyme which converts starch into maltose.



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7. What are disaccharides ?



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8. Which of the following is a polysaccharide :  
Starch, Maltose, Fructose, Glucose.



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9. Name the enzyme which converts maltose into glucose.



[Watch Video Solution](#)

10. Name the enzyme which converts sucrose into glucose and fructose.



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**11.** What happens when glucose is heated with Tollen's reagent?



**Watch Video Solution**

**12.** Define mutarotation.



**Watch Video Solution**

**13.** What happens when D - glucose is treated with the following reagents ?

*HI*



**Watch Video Solution**

**14.** What happens when D - glucose is treated with the following reagents ? Bromine water.



**Watch Video Solution**

**15.** What happens when D - glucose is treated with the following reagents ?  $HNO_3$ .



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**16.** What is the difference between  $\alpha$  - glucose and  $\beta$ - glucose ? Write their cyclic structures



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**17.** What are anomers ?



**Watch Video Solution**



**18.** What is milk sugar ? Give its structure and properties.



**Watch Video Solution**

**19.** What are Carbohydrates ? Why are these main sources of energy?



**Watch Video Solution**

**20.** What are the differences between sugars and non-sugars



**Watch Video Solution**

**21.** What do you mean by inversion of cane sugar ?



**Watch Video Solution**

**22.** Differentiate between reducing and non-reducing sugars.



**Watch Video Solution**

**23.** What do you understand by the glycosidic linkage ?



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**24.** What are the constituents of starch ?



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**25.** Enlist the differences between the components of starch



[Watch Video Solution](#)

**26.** Give the structure of cellulose.



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**27.** What is glycogen ? How is it different from starch?



**Watch Video Solution**

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



**Watch Video Solution**

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



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**30.** What is the structural difference in the monomers of starch and cellulose ?



**Watch Video Solution**

**31.** What is the basic difference between starch and cellulose ?



**Watch Video Solution**

**32.** Enumerate the reactions of D-glucose which cannot be explained by its open chain structure.



**Watch Video Solution**

**33.** What are proteins? Give important functions of proteins in living organism.



**Watch Video Solution**

**34.** What are proteins ?



**Watch Video Solution**

**35.** What are essential and non-essential amino acids ? Give two examples of each type.





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**36.** What is zwitter ion ? Give the zwitter ion structure of  $\alpha$ -amino acid.



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**37.** The solubility in water of amino acids are generally higher than that of the corresponding halo acids. Explain.



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**38.** How do you explain amphoteric nature of amino acids?



**Watch Video Solution**

**39.** Explain isoelectric point of  $\alpha$ -amino acids.



**Watch Video Solution**

**40.** Give difference between polypeptides and proteins.



**Watch Video Solution**

**41.** What is peptide bond ? Give one example.



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**43.** What are proteins ? Discuss different structures of proteins.



**Watch Video Solution**

**44.** What type of forces are responsible for the formation of  $\beta$ -sheet structure ?



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**45.** What is the difference between globular and fibrous protein ?



**Watch Video Solution**

**46.** Write differences between peptides and proteins.



**Watch Video Solution**

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



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**49.** What is the difference between native protein and denatured protein.



[Watch Video Solution](#)

**50.** Explain briefly the denaturation and renaturation of proteins.



**Watch Video Solution**

**51.** What are enzymes ? Write their two properties.



**Watch Video Solution**

**52.** How do enzymes differ from catalysts ?



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**53.** Name four industrial applications of enzymes along with names of enzymes.



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**54.** List the enzymes which help in the digestion of proteins?



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**55.** Name the enzyme whose deficiency causes pheuyketoneurea.



**Watch Video Solution**

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**Watch Video Solution**

**64.** Write one function and two sources of vitamin D.



**Watch Video Solution**

**65.** Why cannot vitamin C be stored in our body?



**Watch Video Solution**

**66.** Write two functions of vitamin-A.



**Watch Video Solution**

**67.** Write two functions of vitamin-A.



**Watch Video Solution**

**68.** Write two functions of vitamin-D.



**Watch Video Solution**

**69.** Write chemical name, deficiency disease and one source of vitamin-C.



**Watch Video Solution**

**70.** Write the chemical name of vitamin  $B_1$  and the disease caused by its deficiency.



**Watch Video Solution**

71. Write two sources of vitamin-K and two diseases caused by its deficiency:



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72. How are vitamins classified ? Name the vitamin responsible for coagulation of blood ?



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**Watch Video Solution**

**80.** How does DNA differ from RNA with respect to Sugar.



**Watch Video Solution**

**81.** How does DNA differ from RNA with respect to Base residue.



**Watch Video Solution**

**82.** Express the following in scientific notation

: 175000



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**83.** Express the following in scientific notation :

0.17



**Watch Video Solution**

**84.** Express the following mathematical operations in scientific notation :  $6.6 (10^*5)$  .  
 $7.7 (10^*9)$



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**85.** The two strands in DNA are not identical but are complimentary. Explain.



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**86.** Express the following mathematical operations in scientific notation :  $6.6 (10^*5)$  .

$7.7 (10^*-7)$



**Watch Video Solution**

**87.** Write six differences between DNA and RNA.



**Watch Video Solution**

**88.** Express the following mathematical operations in scientific notation :  $7.7 (10^* 9) / 6.6 (10^*5)$



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**89.** What is a gene? What is the nature of gene?



**Watch Video Solution**



**90.** What are different types of RNA formed in the cell ?



**Watch Video Solution**

**91.** Explain the term mutation in DNA.



**Watch Video Solution**

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**Watch Video Solution**

**93.** Write short notes on the functions of the following hormones: Androgens



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**Watch Video Solution**



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**Watch Video Solution**

**148.** Name four industrial applications of enzymes along with names of enzymes.



**Watch Video Solution**

**149.** List the enzymes which help in the digestion of proteins?



**Watch Video Solution**

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**Watch Video Solution**

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**162.** Write two functions of vitamin-C.



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**Watch Video Solution**

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**Watch Video Solution**



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**Watch Video Solution**

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**Watch Video Solution**

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[Watch Video Solution](#)

**172.** What is the structural formula of a nucleotide?



[Watch Video Solution](#)

**173.** What is nucleotide?



[Watch Video Solution](#)

**174.** What is the difference between nucleoside and nucleotide ?



**Watch Video Solution**

**175.** How does DNA differ from RNA with respect to Sugar.



**Watch Video Solution**

**176.** How does DNA differ from RNA with respect to Base residue.



**Watch Video Solution**

**177.** What is genetic code?



**Watch Video Solution**

**178.** What is genetic code?



**Watch Video Solution**

**179.** Write a note on semiconservative mode of DNA replication.



**Watch Video Solution**

**180.** The two strands in DNA are not identical but are complimentary. Explain.



**Watch Video Solution**

**181.** What type of bonds hold a DNA double helix together ?



**Watch Video Solution**

**182.** Write six differences between DNA and RNA.



**Watch Video Solution**



**183.** Give any four differences between rhizome and bulb.



**Watch Video Solution**

**184.** What is a gene? What is the nature of gene?



**Watch Video Solution**

**185.** What are different types of RNA formed in the cell ?



**Watch Video Solution**

**186.** Explain the term mutation in DNA.



**Watch Video Solution**

**187.** Write short notes on the functions of the following hormones: Insulin and Glucagon



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**188.** Write short notes on the functions of the following hormones: Androgens



[Watch Video Solution](#)

**189.** Write short notes on the functions of the following hormones: Estrogens



[Watch Video Solution](#)

**190.** Name the organ or 'cell which secretes thyroxine and 'adrenaline. State function.



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## Multiple Choice Questions

**1.** Distinguish between the following:

Glycolysis and Fermentation

A. oxidation of glucose to glutamate

B. conversion of pyruvate to citrate

C. oxidation of glucose to pyruvate

D. conversion of glucose to haematin.

**Answer: C**



**Watch Video Solution**

2. Molisch test is answered by

A. all carbohydrates

B. sucrose

C. fructose

D. glucose

**Answer: A**



**Watch Video Solution**

**3. Last product of protein digestion is**

A. polypeptides

B. DNA

C. amino acid

D. peptones

**Answer: C**



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4. Express the following mathematical operations in scientific notation :  $7.7 (10^4) + 0.77 (10^5)$



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5. Express the following mathematical operations in scientific notation :  $8.7 (10^4) -$

0.77 ( $10^5$ )



**Watch Video Solution**

6. Express 900.0 in scientific notation



**Watch Video Solution**

7. Express  $2.2 (10^4) \cdot 3.3 (10^5)$  in scientific notation



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**8.** Express the following to four significant figures : 6.608792



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**9.** Express the following to four significant figures : 42.392800



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10. When amylases catalyse the hydrolysis of starch the final product obtained is chiefly

A.

B.

C.

D.

**Answer: B**



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11. Which is correct statement ?

A. Starch is a polymer of *alphah* -glucose

B. Amylose is a compound of cellulose

C. Proteins are compounds of only one  
type amino acid

D. In cyclic structure of fructose, there a  
four carbons and one oxygen atom.

**Answer: B**



**Watch Video Solution**

**12.** Calculate equivalent weight of calcium hydroxide.



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**13.** Both deoxyribose and ribose belong to a class of sugars called:

A. phosphoric acid

B. ribose

C. adenine

D. thymine

**Answer: A**



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**14. Which is not a reducing sugar?**

A. Glucose

B. Fructose

C. Mannose

D. Sucrose

**Answer: B**



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The above reaction is an example of

- A. hydrolysis
- B. saponification
- C. dehydration
- D. fermentation

**Answer: D**



**Watch Video Solution**

**16.** Which of the following carbohydrate is an essential constituent of plant cell ?

A. Starch

B. Cellulose

C. vitamins

D.

**Answer: A**



**Watch Video Solution**

**17.** The sweetest sugar among the following is

A. galactose

B. fructose

C. glucose

D. sucrose

**Answer: B**





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**18.** The disease Beriberi is caused due to deficiency of vitamin

A. D

B. C

C. B

D. A

**Answer: C**



19. Where is thyroxine hormone secreted?

- A. is secreted by thyroid glands
- B. does not stimulate metabolism
- C. decreases blood sugar
- D. is secreted by pancreas.

**Answer: A**



20. The base unit that is absent in DNA is

A. adenine

B. guanine

C. uracil

D. cytosine

**Answer: C**



**Watch Video Solution**

21. If the sequence of bases in one strand of DNA is ATGACTGTC then the sequence of bases in its complementary strand is

- A. TACTGACAG
- B. TUCTUGUC CUG
- C. GUAGTUAUG
- D. none of these.

**Answer: A**



**Watch Video Solution**

**22. Saliva contains**

A. Amylases or ptyalins

B. Trypsin

C. Bile fluid

D. Vitamins

**Answer: A**



**Watch Video Solution**

23. Which of the following is a molecular disease?

A. Allergy

B. Cancer

C. German measles

D. Sickle cell anaemia

**Answer: D**



**Watch Video Solution**

24. Lipids are

- A. Nucleic acids occurring in plants
- B. Proteins occurring in animals
- C. Carbohydrates occurring in plants
- D. Fats of natural origin.

**Answer: D**



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25. The commonest disaccharide has the molecular formula



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26. Which of the following has magnesium?

A. Carbonic anhydrase

B. Haemocyanin

C. Chlorophyll

D. Vitamin  $B_{12}$



**Answer: C**



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**27. An example of water insoluble vitamin is**

A. Vitamin  $B_1$

B. Vitamin E

C. Vitamin  $B_2$

D. Vitamin C

**Answer: B**



[Watch Video Solution](#)

**28.** Last product of protein digestion is

A. Last product of protein digestion is

B. DNA

C. amino acid

D. peptones

**Answer: C**



[Watch Video Solution](#)

**29.** A nucleotide consists of

A. ribose sugar

B. nitrogen containing base

C. phosphate group

D. All of these.

**Answer: D**



**Watch Video Solution**

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

- A. enantiomers
- B. geometrical isomers
- C. epimers
- D. anomers

**Answer: D**



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31. An example of water soluble vitamin is

A. vitamin D

B. vitamin E

C. vitamin A

D. vitamin C.

**Answer: D**



**Watch Video Solution**

**32.** The base adenine occurs in

A. DNA only

B. RNA only

C. DNA and RNA both

D. protein.

**Answer: C**



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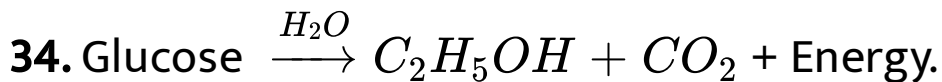
33. Write the IUPAC Name of  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CONH}_2$

- A. Propanamide
- B. Propaneamide
- C. Ethanamine
- D. None

**Answer: B**



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The above reaction is an example of

- A. hydrolysis
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- C. dehydration
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35. The sweetest sugar among the following is

A. lactose

B. fructose

C. glucose

D. sucrose

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**Watch Video Solution**

**36.** If the sequence of bases in one strand of DNA is ATGACTGTC then the sequence of bases in its complementary strand is

- A. TACTGACAG
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- C. GUAGTUAUG
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37. Which of the following has magnesium?



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41. A nucleotide consists of

- A. ribose sugar
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- D. All of these

**Answer: D**



**Watch Video Solution**

42. Peptides on hydrolysis give

A. amines

B. amino acids

C. ammonia

D. alcohols

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**Watch Video Solution**

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

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- B. geometrical isomers
- C. epimers
- D. anomers

**Answer: D**



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**44.** Which of the following gives maximum energy in metabolic processes ?

A. proteins

B. vitamins

C. lipids

D. carbohydrates

**Answer: C**



**Watch Video Solution**

45. An example of water soluble vitamins is

A. Vitamin D

B. Vitamin E

C. Vitamin A

D. Vitamin C

**Answer: D**



**Watch Video Solution**

46. Which of the following is a rocket fuel?

A. cyanogen +  $O_3$

B. cyanogen +  $O_2$

C. water gas +  $O_3$

D. nitrolim +  $O_3$

**Answer: B**



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**49.** The base adenine occurs in

A. DNA only

B. RNA only

C. DNA and RNA both

D. protein

**Answer: C**



**Watch Video Solution**

**50.** DNA has deoxyribose, a base and the third compound is

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**Watch Video Solution**

**51. Which is not a reducing sugar?**

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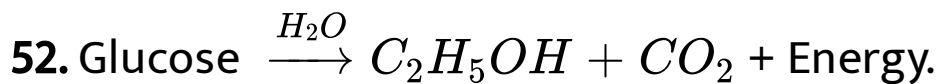
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**Answer: D**





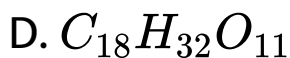
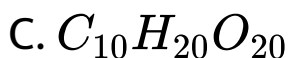
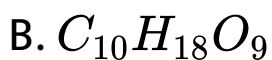
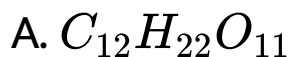
**61.** Lipids are

- A. Nucleic acids occurring in plants
- B. Proteins occurring in animals
- C. Carbohydrates occurring in plants
- D. Fats of natural origin.

**Answer: D**



62. The commonest disaccharide has the molecular formula



**Answer: A**



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63. Which of the following has magnesium?

A. Carbonic anhydrase

B. Haemocyanin

C. Chlorophyll

D. Vitamin  $B_{12}$

**Answer: C**



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64. An example of water insoluble vitamin is

A. Vitamin  $B_1$

B. Vitamin E

C. Vitamin  $B_2$

D. Vitamin C

**Answer: B**



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**65.** Last product of protein digestion is

A. Last product of protein digestion is

B. DNA

C. amino acid

D. peptones

**Answer: C**



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**66.** A nucleotide consists of

A. ribose sugar

B. nitrogen containing base

C. phosphoric acid

D. All of these.

**Answer: D**



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

A. enantiomers

B. geometrical ,isomers

C. epimers

D. anomers

**Answer: D**



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**68.** An example of water soluble vitamin is

A. vitamin D

B. vitamin E

C. vitamin A

D. vitamin C.

**Answer: D**



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**69.** The base adenine occurs in

- A. DNA only
- B. RNA only
- C. DNA and RNA both
- D. protein.

**Answer: C**





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70. Which is not a reducing sugar?

A. glucose

B. fructose

C. mannose

D. sucrose

**Answer: B**



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The above reaction is an example of

- A. hydrolysis
- B. saponification
- C. dehydration
- D. fermentation

**Answer: D**



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72. The sweetest sugar among the following is

A. lactose

B. fructose

C. glucose

D. sucrose

**Answer: B**



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73. If the sequence of bases in one strand of DNA is ATGACTGTC then the sequence of bases in its complementary strand is

- A. TACTGACAG
- B. TUCTUGUCCUG
- C. GUAGTUAUG
- D. none of these.

**Answer: A**



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74. Which of the following has magnesium?

A. Carbonic anhydrase

B. Haemocyanin

C. Chlorophyll

D. Vitamin  $B_{12}$ .

**Answer: C**



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