

Questions

MathonGo

Q1 - 24 June - Shift 1

A polysaccharide 'X' on boiling with dil H_2SO_4 at 393 K under 2-3 atm pressure yields 'Y'.

'Y' on treatment with bromine water gives gluconic acid. 'X' contains β -glycosidic linkages only.

Compound 'X' is :

- (A) starch (B) cellulose
(C) amylose (D) amylopectin

Space for your notes:

Q2 - 24 June - Shift 2

In alanylglycylleucylalanylvaline, the number of peptide linkages is _____.

Space for your notes:

Q3 - 25 June - Shift 2

How many of the given compounds will give a positive Biuret test _____? Glycine, Glycylalanine, Tripeptide, Biuret

Space for your notes:

Q4 - 26 June - Shift 1

The number of oxygens present in a nucleotide formed from a base, that is present only in RNA is _____.

Space for your notes:

Q5 - 26 June - Shift 2

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Match List I with List II.

Space for your notes:

List I Enzyme	List II Conversion of
A. Invertase	I. Starch into maltose
B. Zymase	II. Maltose into glucose
C. Diastase	III. Glucose into ethanol
D. Maltase	IV. Cane sugar into glucose

Choose the most appropriate answer from the options given below :

- (1) A-III, B-IV, C-II, D-I
- (2) A-III, B-II, C-I, D-IV
- (3) A-IV, B-III, C-I, D-II
- (4) A-IV, B-II, C-III, D-I

Q6 - 26 June - Shift 2

Which one of the following is a water soluble vitamin, that is not excreted easily?

Space for your notes:

- (1) Vitamin B₂
- (2) Vitamin B₁
- (3) Vitamin B₆
- (4) Vitamin B₁₂

Q7 - 27 June - Shift 2

Questions

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Given below are two statements.

Space for your notes:

Statement I: Maltose has two α -D-glucose units linked at C_1 and C_4 and is a reducing sugar.

Statement II: Maltose has two monosaccharides: α -D-glucose and β -D-glucose linked at C_1 and C_6 and it is a non-reducing sugar.

In the light of the above statements, choose the correct answer from the options given below.

- (A) Both Statement I and Statement II are true
- (B) Both Statement I and Statement II are false
- (C) Statement I is true but Statement II is false
- (D) Statement I is false but Statement II is true

Q8 - 28 June - Shift 1

Stability of α - Helix structure of proteins depends upon

Space for your notes:

- (A) dipolar interaction
- (B) H-bonding interaction
- (C) van der Waals forces
- (D) π -stacking interaction

Q9 - 28 June - Shift 2

When sugar 'X' is boiled with dilute H_2SO_4 in alcoholic solution, two isomers 'A' and 'B' are formed. 'A' on oxidation with HNO_3 yields saccharic acid whereas 'B' is laevorotatory. The compound 'X' is :

Space for your notes:

- (A) Maltose
- (B) Sucrose
- (C) Lactose
- (D) Strach

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Questions

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Q10 - 28 June - Shift 2

2.5 g of protein containing only glycine ($C_2H_5NO_2$) is dissolved in water to make 500 mL of solution. The osmotic pressure of this solution at 300 K is found to be 5.03×10^{-3} bar. The total number of glycine units present in the protein is _____
(Given : $R = 0.083 \text{ L bar K}^{-1} \text{ mol}^{-1}$)

Space for your notes:

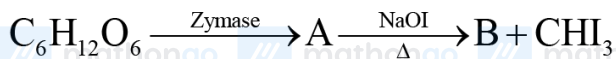
Q11 - 29 June - Shift 1

Sugar moiety in DNA and RNA molecules respectively are

Space for your notes:

- (A) β -D-2-deoxyribose, β -D-deoxyribose
- (B) β -D-2-deoxyribose, β -D-ribose
- (C) β -D-ribose, β -D-2-deoxyribose
- (D) β -D-deoxyribose, β -D-2-deoxyribose

Q12 - 29 June - Shift 1

*Space for your notes:*

The number of carbon atoms present in the product B is _____.

Q13 - 29 June - Shift 2

The structure of protein that is unaffected by heating is :

Space for your notes:

- (A) secondary structure
- (B) tertiary structure
- (C) primary structure
- (D) quaternary structure

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Answer Key

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Q1 (B) **Q2 (4)** **Q3 (2)** **Q4 (9)**
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Q5 (C) **Q6 (D)** **Q7 (C)** **Q8 (B)**
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Q9 (B) **Q10 (330)** **Q11 (B)** **Q12 (1)**
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Q13 (C)
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Q1 (B)Cellulose contains β – glycosidic linkages only**Q2 (4)**

There are Five amino acids and four peptide linkages.

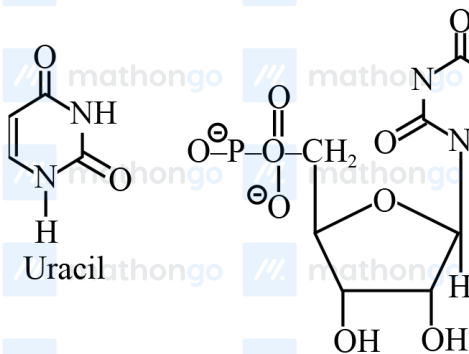
Q3 (2)

Biuret test is given by all proteins and peptides having atleast two peptide linkages.

Hence positive test must be given by tripeptide and Biuret.

Q4 (9)

Uracil is the base which only present is RNA.

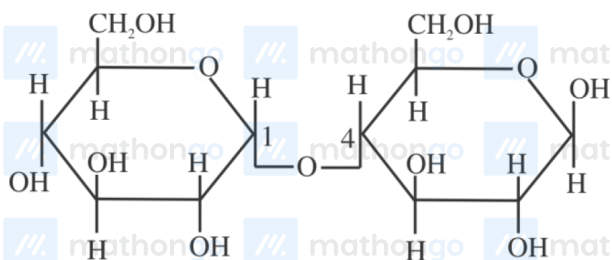


Structure of nucleotides number of 0-9.

Q5 (C)Invertase : Cane sugar \rightarrow Glucose and fructoseZymase : Glucose \rightarrow Ethanol and CO_2 Diastase : Starch \rightarrow MaltoseMaltase : Maltose \rightarrow Glucose**Q6 (D)**

Refer NCERT (Page No. 426)

Q7 (C)

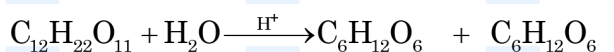


Maltose

Q8 (B)

Mostly H-bonding is responsible for the stability of α -helix form.

Q9 (B)

[α] = 66.6°

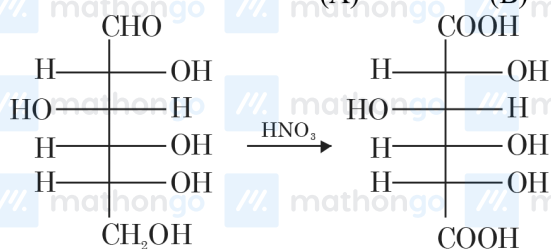
D-Glucose

D-Fructose

[α] = +52.7°[α] = -92.2°

(A)

(B)



Sachharic acid

Q10 (330)

Hints and Solutions

MathonGo

$$\pi = CRT$$

$$5.03 \times 10^{-3} = C \times 0.083 \times 300$$

$$C = 0.202 \times 10^{-3} \text{ M}$$

$$\text{Moles of protein} = 0.202 \times 10^{-3} \times 0.5$$

$$= 10^{-4} \times 1.01$$

$$1.01 \times 10^{-4} = \frac{2.5}{M}$$

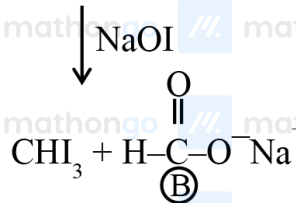
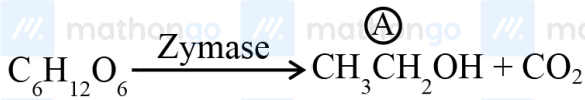
$$M(\text{molar mass of protein}) = 24752$$

$$\therefore \text{No. of glycine units} = \frac{24752}{75} = 330.03$$

Q11 (B)

DNA contains $\Rightarrow \beta - D - 2 - \text{deoxyribose}$

RNA contains $\Rightarrow \beta - D - \text{ribose}$

Q12 (1)

no. of carbon atoms present in B is 1

Q13 (C)

Primary structure of protein is unaffected by physical 'or' chemical changes.