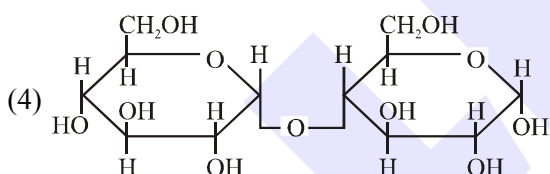
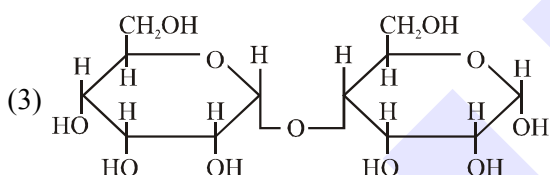
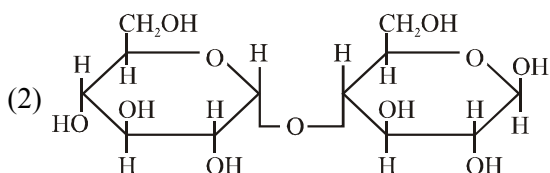
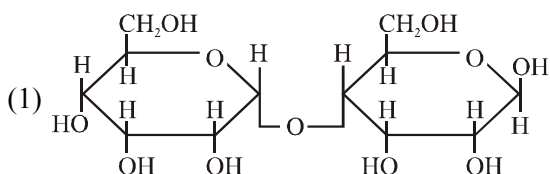


BIOMOLECULES

- Which of the glycosidic linkage between galactose and glucose is present in lactose?
 - (1) C-1 of galactose and C-4 of glucose
 - (2) C-1 of glucose and C-6 of galactose
 - (3) C-1 of glucose and C-4 of galactose
 - (4) C-1 of galactose and C-6 of glucose
- Which of the following is correct structure of α -anomer of maltose ?



- Which of the following vitamin is helpful in delaying the blood clotting -
 - (1) Vitamin C
 - (2) Vitamin B
 - (3) Vitamin E
 - (4) Vitamin K
- Match List-I with List-II

List-I

List-II

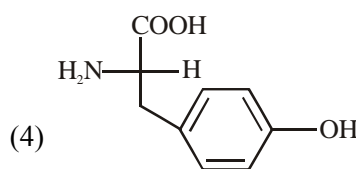
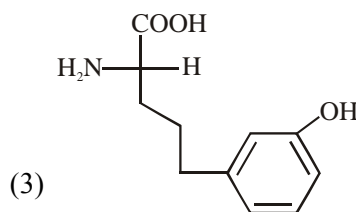
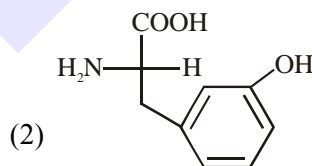
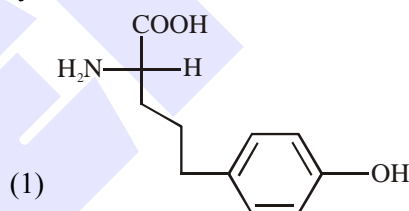
- | | |
|-------------|---|
| (a) Sucrose | (i) β -D-Galactose and β -D-Glucose |
| (b) Lactose | (ii) α -D-Glucose and β -D-Fructose |
| (c) Maltose | (iii) α -D-Glucose and α -D-Glucose |

Choose the correct answer from the options given below :

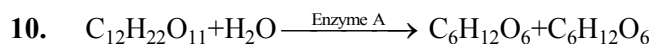
Options :

- (1) (a) \rightarrow (i), (b) \rightarrow (iii), (c) \rightarrow (ii)
- (2) (a) \rightarrow (iii), (b) \rightarrow (i), (c) \rightarrow (ii)
- (3) (a) \rightarrow (ii), (b) \rightarrow (i), (c) \rightarrow (iii)
- (4) (a) \rightarrow (iii), (b) \rightarrow (ii), (c) \rightarrow (i)

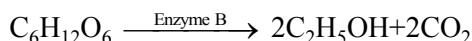
- Seliwanoff test and Xanthoproteic test are used for the identification of _____ and _____ respectively
 - (1) Aldoses, ketoses
 - (2) Proteins, ketoses
 - (3) Ketoses, proteins
 - (4) Ketoses, aldoses
- Which among the following pairs of Vitamins is stored in our body relatively for longer duration?
 - (1) Thiamine and Vitamin A
 - (2) Vitamin A and Vitamin D
 - (3) Thiamine and Ascorbic acid
 - (4) Ascorbic acid and Vitamin D
- The secondary structure of protein is stabilised by:
 - (1) Peptide bond
 - (2) glycosidic bond
 - (3) Hydrogen bonding
 - (4) van der Waals forces
- Which of the following is correct structure of tyrosine?



- Fructose is an example of :-
 - (1) Pyranose
 - (2) Ketohexose
 - (3) Aldohexose
 - (4) Heptose



Sucrose Glucose Fructose

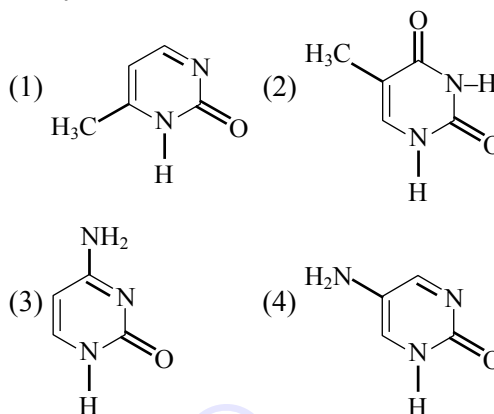


Glucose

In the above reactions, the enzyme A and enzyme B respectively are :-

- (1) Amylase and Invertase
 - (2) Invertase and Amylase
 - (3) Invertase and Zymase
 - (4) Zymase and Invertase
11. A non-reducing sugar "A" hydrolyses to give two reducing mono saccharides. Sugar A is-
- (1) Fructose (2) Galactose
 - (3) Glucose (4) Sucrose
12. Deficiency of vitamin K causes :
- (1) Increase in blood clotting time
 - (2) Increase in fragility of RBC's
 - (3) Cheilosis
 - (4) Decrease in blood clotting time
13. Which one of the following statements is not true about enzymes ?
- (1) Enzymes are non-specific for a reaction and substrate.
 - (2) Almost all enzymes are proteins.
 - (3) Enzymes work as catalysts by lowering the activation energy of a biochemical reaction.
 - (4) The action of enzymes is temperature and pH specific
14. The water soluble protein is :
- (1) Fibrin (2) Albumin
 - (3) Myosin (4) Collagen

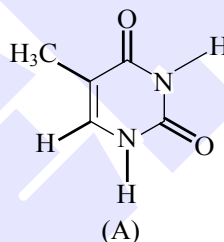
15. Which one of the following is correct structure for cytosine ?



16. Which one among the following chemical tests is used to distinguish monosaccharide from disaccharide ?

- (1) Seliwanoff's test (2) Iodine test
- (3) Barfoed test (4) Tollen's test

17.



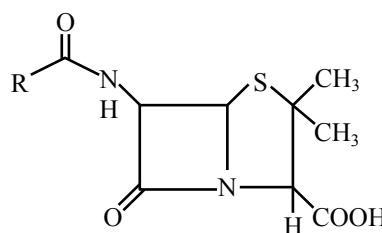
The compound 'A' is a complementary base of _____ in DNA stands.

- (1) Uracil (2) Guanine
- (3) Adenine (4) Cytosine

18. Given below are two **statements** :

Statement I : Penicillin is a bacteriostatic type antibiotic.

Statement II : The general structure of Penicillin is:



Choose the correct option :

- (1) Both **statement I** and **statement II** are false
- (2) **Statement I** is incorrect but **statement II** is true
- (3) Both **statement I** and **statement II** are true
- (4) **Statement I** is correct but **statement II** is false

19. Compound A gives D-Galactose and D-Glucose on hydrolysis. The compound A is :

- (1) Amylose (2) Sucrose
(3) Maltose (4) Lactose

20. The total number of negative charge in the tetrapeptide, Gly-Glu-Asp-Tyr, at pH 12.5 will be _____. (Integer answer)

21. Given below are two statements : one is labelled as **Assertion (A)** and other is labelled as **Reason (R)**.

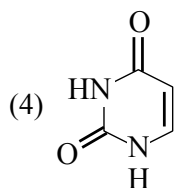
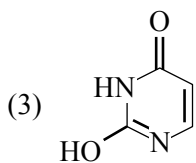
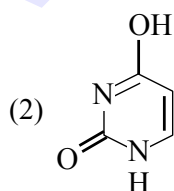
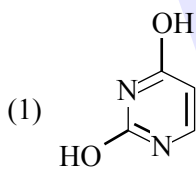
Assertion (A) : Sucrose is a disaccharide and a non-reducing sugar.

Reason (R) : Sucrose involves glycosidic linkage between C₁ of β -glucose and C₂ of α -fructose.

Choose the **most appropriate** answer from the options given below :

- (1) Both (A) and (R) are true but (R) is not the true explanation of (A)
(2) (A) is false but (R) is true.
(3) (A) is true but (R) is false
(4) Both (A) and (R) are true and (R) is the true explanation of (A)

22. Out of following isomeric forms of uracil, which one is present in RNA ?



23. Which one of the following tests used for the identification of functional groups in organic compounds does not use copper reagent ?

- (1) Barfoed's test
(2) Seliwanoff's test
(3) Benedict's test
(4) Biuret test for peptide bond

24. Hydrolysis of sucrose gives :

- (1) α -D-(-)-Glucose and β -D-(-)-Fructose
(2) α -D-(+)-Glucose and α -D-(-)-Fructose
(3) α -D-(-)-Glucose and α -D-(+)-Fructose
(4) α -D-(+)-Glucose and β -D-(-)-Fructose

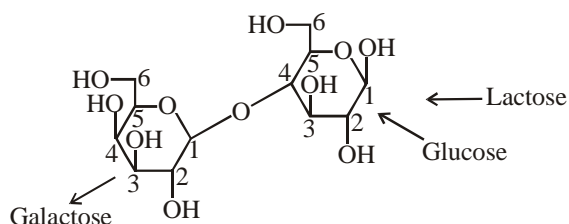
25. Which one of the following compounds contains β -C₁-C₄ glycosidic linkage ?

- (1) Lactose (2) Sucrose
(3) Maltose (4) Amylose

26. Which of the following is NOT an example of fibrous protein ?

- (1) Keratin (2) Albumin
(3) Collagen (4) Myosin

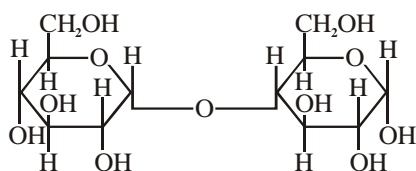
27. A peptide synthesized by the reactions of one molecule each of Glycine, Leucine, Aspartic acid and Histidine will have _____ peptide linkages.

SOLUTION**1. Official Ans. by NTA (1)****Sol.**

In lactose linkage is formed between C_1 of galactose and C_4 of glucose.

2. Official Ans. by NTA (4)**Sol.** α -ANOMER OF MALTOSE

maltose is disaccharides of α -D-glucopyranose by C_1 - C_4 glycosidic linkage

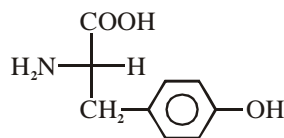
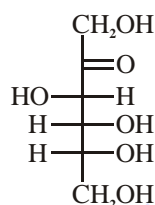
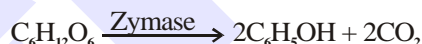
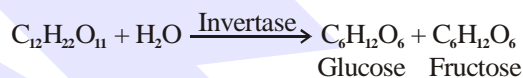
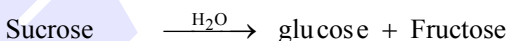
**3. Official Ans. by NTA (4)****Sol.** Vitamin helpful in delaying the blood clotting is Vitamin K**4. Official Ans. by NTA (3)****Sol.**

- (1) Sucrose \rightarrow α -D-Glucose and β -D-Fructose
 (2) Lactose \rightarrow β -D-Galactose and β -D-Glucose
 (3) Maltose \rightarrow α -D-Glucose and α -D-Glucose

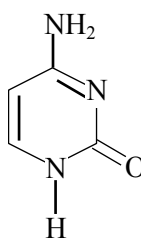
a \rightarrow IIb \rightarrow Ic \rightarrow III**5. Official Ans. by NTA (3)****Sol.** Seliwanoff test for ketose and Xanthoprotic test for proteins.**6. Official Ans. by NTA (2)****Sol.** Vitamin-A & Vitamin-D**7. Official Ans. by NTA (3)****Sol.** The secondary structure of protein includes two type :

- (a) α -Helix (b) β -pleated sheet

In α -Helix structure, the poly peptide chain is coil around due to presence of Intramolecular H-Bonding.

8. Official Ans. by NTA (4)**Sol.** The structure of Tyrosine amino acid is**9. Official Ans. by NTA (2)****Sol.** Fructose is a ketohexose.**10. Official Ans. by NTA (3)****Sol.** Informative**OR****11. Official Ans. by NTA (4)**

Sol. (Non reducing sugar) (Reducing sugar) (Reducing sugar)

12. Official Ans. by NTA (1)**Sol.** Due to deficiency of Vitamin K causes increases in blood clotting time.**Note :** Vitamin K related to blood factor.**13. Official Ans. by NTA (1)****Sol.** Fact**14. Official Ans. by NTA (2)****Sol.** Albumin is water soluble.**15. Official Ans. by NTA (3)****Sol.** The correct structure of cytosine**16. Official Ans. by NTA (3)****Sol.** Barford test is used for distinguish monosaccharide from disaccharide

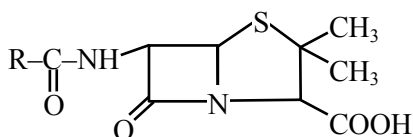
17. Official Ans. by NTA (3)

Sol. Given structure is Thymine and Thymine being paired with adenine

18. Official Ans. by NTA (2)

Sol. **Statement I** : Pencillin is bactericidal not bacteriostatic hence given statement is false.

Statement II : Structure of pencilline given is correct



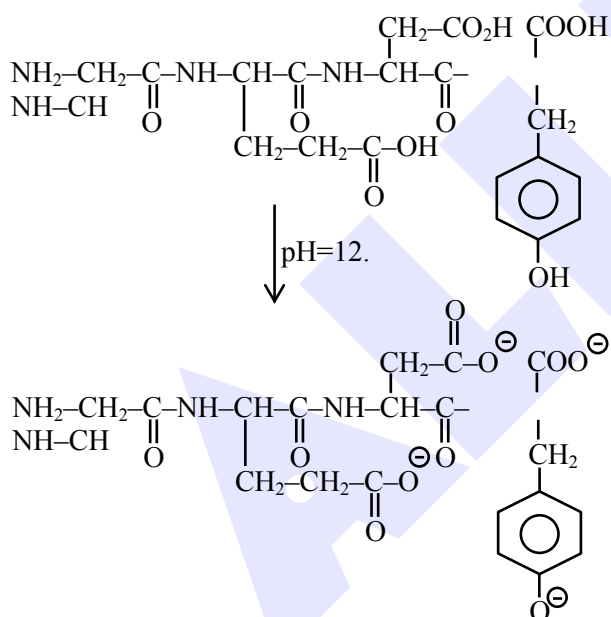
19. Official Ans. by NTA (4)

Sol. **Lactose** : It is a disaccharide of β -D-Galactose and β -D-Glucose with C_1 of galactose and C_4 of glucose link.

Lactose : β -D-Galactose + β -D-Glucose

20. Official Ans. by NTA (4)

Sol.



Total negative charge produced = 4.

21. Official Ans. by NTA (3)

Sol. Sucrose is example of disaccharide & non reducing sugar

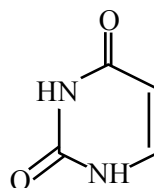
Assertion : correct

Sucrose involves glycosidic linkage between C_1 of α -D-glucose C_2 of β -D-fructose

Reason : Incorrect

22. Official Ans. by NTA (4)

Sol. Isomeric form of uracil present in RNA



23. Official Ans. by NTA (2)

Sol. In Seliwanoff's reagent, Cu is not present.

In Barfoed, Biuret and in Benedict reagent Cu is present.

24. Official Ans. by NTA (4)

Sol. Sucrose is formed by α -D(+). Glucose + β -D (-) Fructose.

we obtain these monomers on hydrolysis.

25. Official Ans. by NTA (1)

Sol. In Lactose it is β $C_1 - C_4$ glycosidic linkage.

In Maltose, Amylose α $C_1 - C_4$ glycosidic linkage is present

26. Official Ans. by NTA (2)

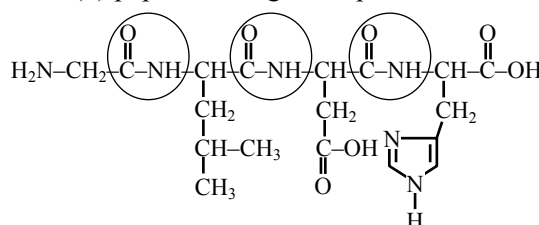
Sol. Keratin, collagen and myosin are example of fibrous protein.

27. Official Ans. by NTA (3)

Sol. Glycine — leucine — Aspartic acid — Histidine

peptide link peptide link peptide link

Total (3) peptide linkages are present



3 peptide linkage

Ans. (3)