

Chapter Biochemistry

Important Multiple Choice Questions:

1) Carbohydrates are of

- a) Two types
- b) Three types**
- c) Four types
- d) Five types

Solution:

Carbohydrates are classified into three classes which are given below:

1. Monosaccharides
2. Oligosaccharides
3. Polysaccharides

Therefore the answer is three types.

2) Carbohydrates are

- a) Monosaccharides
- b) Oligosaccharides
- c) Polysaccharides
- d) All of them**

Solution:

Carbohydrates are classified into three classes which are given below:

1. Monosaccharides
2. Oligosaccharides
3. Polysaccharides

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Therefore the answer is all of them.

3) The building blocks of carbohydrates are

- a) Glucose
- b) Fructose
- c) Galactose
- d) **All of them**

Solution:

Complex carbohydrates are the polymers of monosaccharides (monomers e.g. glucose, fructose and galactose). Therefore, the answer is all of them.

4) The bond between monomers of carbohydrates is

- a) Peptide bond
- b) **Glycosidic bond**
- c) Phosphodiester bond
- d) None of the above

Solution:

The monomers (monosaccharides e.g. glucose, fructose and galactose) are linked together by a glycosidic bond. Therefore the answer is glycosidic bond.

5) Monosaccharides give

- a) Two units on hydrolysis
- b) Three units on hydrolysis
- c) Five units on hydrolysis
- d) **Cannot be hydrolyzed**

Solution:

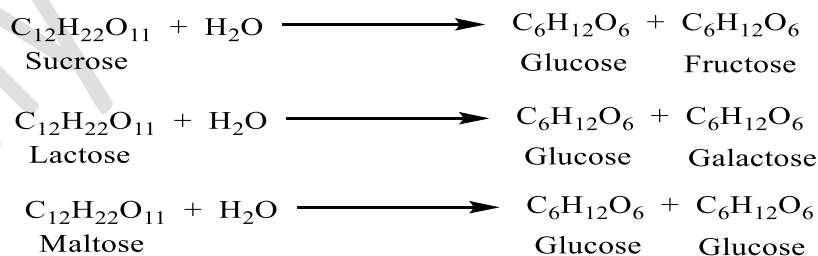
Monosaccharides are simple sugars and they cannot be further hydrolyzed. Therefore, the answer is cannot be hydrolyzed.

6) Disaccharides give

- a) Two monomers on hydrolysis
- b) Three monomers on hydrolysis
- c) Four units on hydrolysis
- d) Disaccharides cannot be hydrolyzed

Solution:

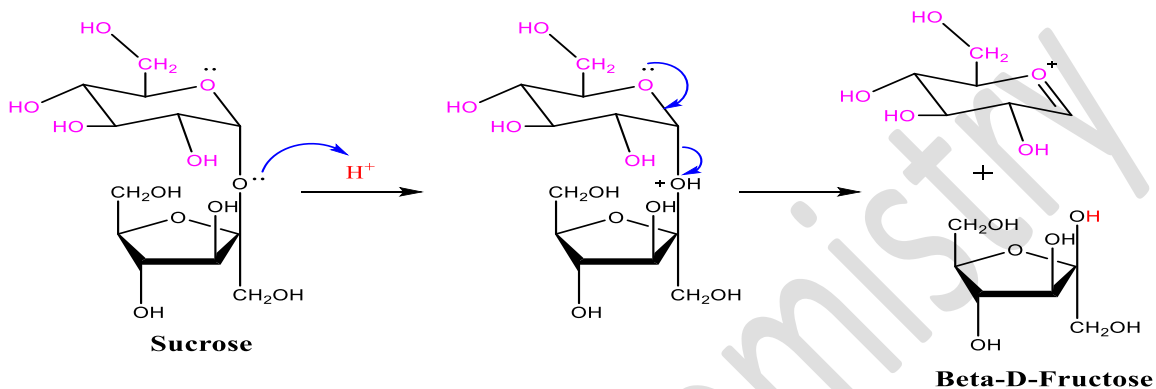
- Disaccharides belong to the oligosaccharide class of carbohydrates.
- On hydrolysis, they split up into two monosaccharides.
- For example, sucrose is a disaccharide that splits up into two monomers glucose and fructose on hydrolysis.
- Similarly, lactose is a disaccharide that splits up into two monomers glucose and galactose on hydrolysis.
- Maltose is also a disaccharide that splits up into two monomers glucose and glucose on hydrolysis.
- Therefore, the answer is two monomers on hydrolysis.
- The reaction schemes and their mechanisms are illustrated below.



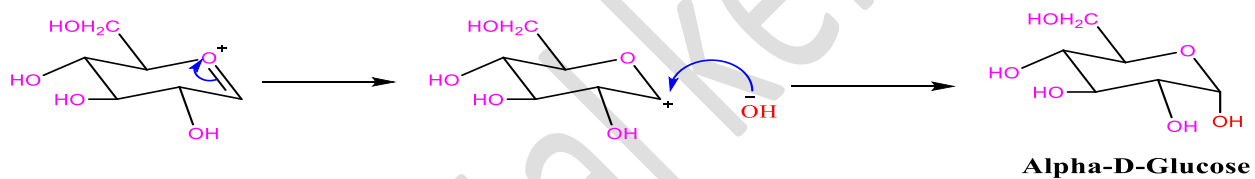
Mechanism of hydrolysis of Sucrose:

Mechanism:

Step 1:

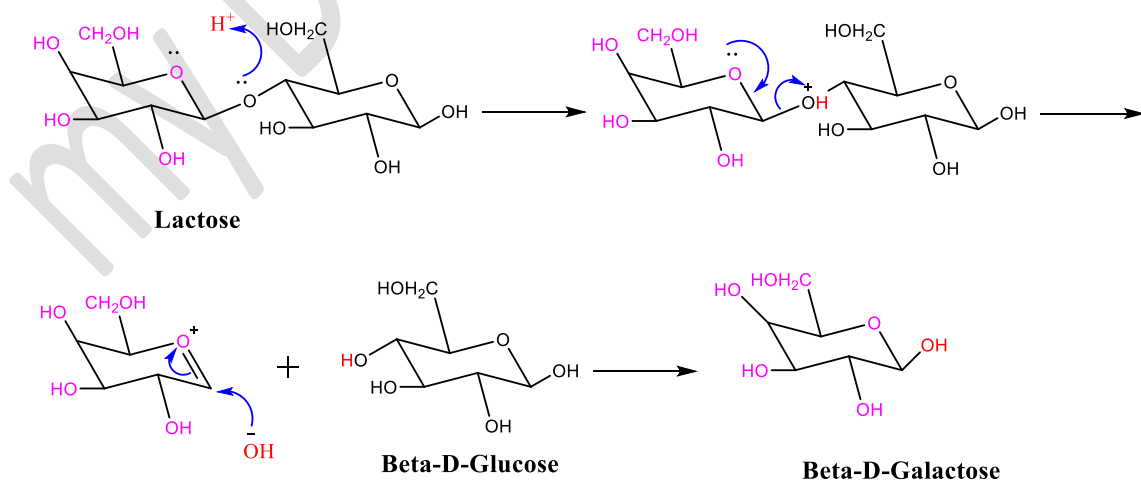


Step 2:



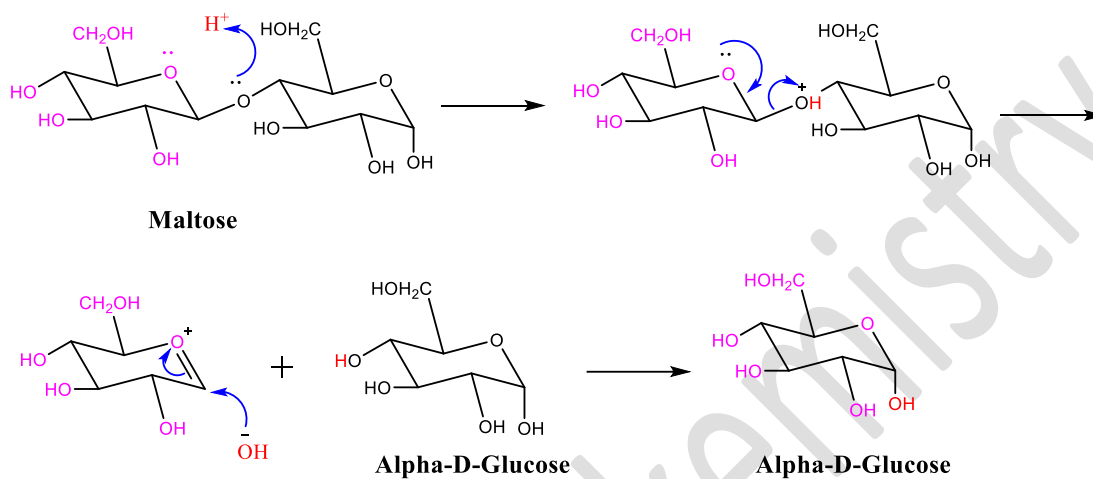
Mechanism of hydrolysis of Lactose:

Mechanism:



Mechanism of hydrolysis of Maltose:

Mechanism:



7) Oligosaccharides give

- 1-5 monosaccharides on hydrolysis
- 5-10 monosaccharides on hydrolysis
- 2-5 monosaccharides on hydrolysis
- 2-10 monosaccharides on hydrolysis**

Solution:

- Oligosaccharide is the class of carbohydrates, which splits up into 2-10 monosaccharides on hydrolysis.
- The oligosaccharides, split up into two monosaccharides on hydrolysis are called disaccharides.
- Oligosaccharides split up into three monosaccharides on hydrolysis are called trisaccharides.
- Oligosaccharides split up into four monosaccharides on hydrolysis are called tetrasaccharides.
- Oligosaccharides split up into five monosaccharides on hydrolysis are called pentasaccharides.

- Oligosaccharides split up into six monosaccharides on hydrolysis are called hexasaccharides.
- Oligosaccharides split up into seven monosaccharides on hydrolysis are called heptasaccharides.
- Oligosaccharides split up into eight monosaccharides on hydrolysis are called octasaccharides.
- Oligosaccharides split up into nine monosaccharides on hydrolysis are called nanasaccharides.
- Oligosaccharides split up into ten monosaccharides on hydrolysis are called decasaccharides.

Therefore the answer is 2-10 monosaccharides on hydrolysis.

8) Polysaccharides give

- 50-100 monosaccharides on hydrolysis
- 100-300 monosaccharides on hydrolysis
- 500-800 monosaccharides on hydrolysis
- 100-1000 monosaccharides on hydrolysis**

Solution:

- Polysaccharide is the class of carbohydrates.
- They are complex carbohydrates e.g. starch and cellulose, insoluble in water and on hydrolysis they split up into 100-1000 monosaccharides on hydrolysis.
- Therefore, the answer is 100-1000 monosaccharides on hydrolysis.

9) Which one is insoluble in water

- Monosaccharides
- Oligosaccharides
- Polysaccharides**
- All of them

Solution:

- Carbohydrates are classified into monosaccharides, oligosaccharides and polysaccharides.
- The first two classes; monosaccharides and oligosaccharides are water-soluble.
- While the third class of carbohydrates e.g. polysaccharides are complex carbohydrates.
- Due to their complex and non-polar nature, they are insoluble in water.
- Therefore the answer is polysaccharides.

10) Which carbohydrate is sweet in taste?

- a) Monosaccharide
- b) Oligosaccharide
- c) Polysaccharides
- d) **Both monosaccharides and oligosaccharides**

Solution:

- The two water-soluble classes of carbohydrates e.g. monosaccharides and oligosaccharides are sweet in taste.
- While the third class of carbohydrates e.g. oligosaccharide (non-soluble in water) is tasteless.
- Therefore, the answer is both monosaccharides and oligosaccharides.

11) The formula of monosaccharides is

- a) $(C_nH_{2n}O)_n$
- b) $C_n(H_{2n+2}O)_n$
- c) **$(CH_2O)_n$**
- d) None of them

Solution:

- The general formula of monosaccharides is $(CH_2O)_n$. In this formula, n is the number of carbon atoms.

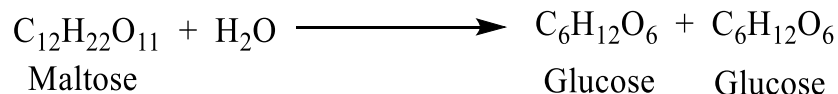
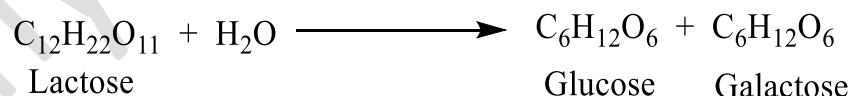
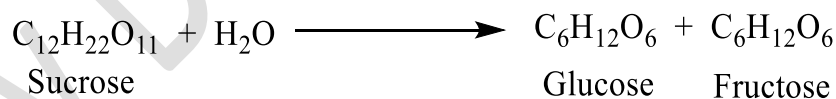
- For proof let's apply this formula to six C-atoms. $(\text{CH}_2\text{O})_6 = \text{C}_6\text{H}_{2 \times 6}\text{O}_6 = \text{C}_6\text{H}_{12}\text{O}_6$
- So, $\text{C}_6\text{H}_{12}\text{O}_6$ is the molecular formula of the most common three monosaccharides, glucose, fructose and galactose.
- Therefore, the answer is $(\text{CH}_2\text{O})_n$.

12) The disaccharides are

- Sucrose
- Lactose
- Maltose
- All of them**

Solution:

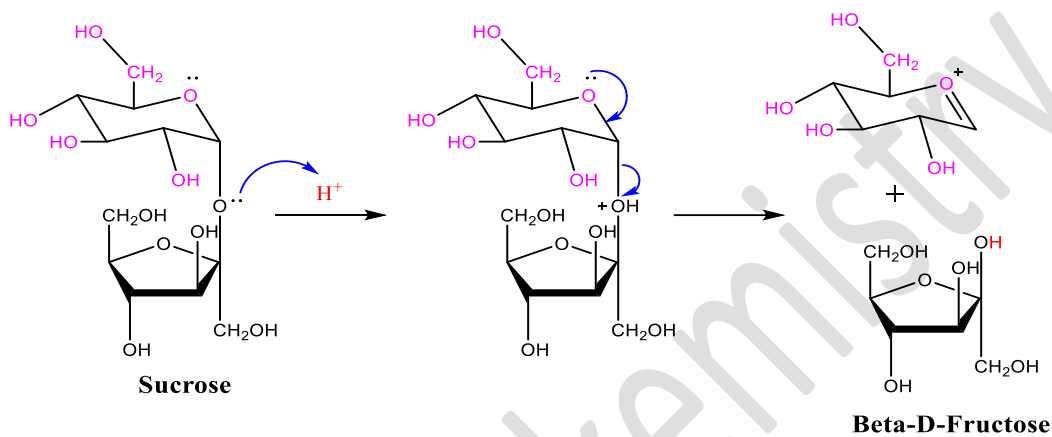
- We know that we call disaccharides to those carbohydrates which split up into two monosaccharides on hydrolysis.
- Sucrose, lactose and maltose all are disaccharides because on hydrolysis each one splits up into two monosaccharides.
- For example, sucrose splits up two monosaccharides, glucose and fructose on hydrolysis.
- Lactose splits up into two monosaccharides, glucose and galactose on hydrolysis.
- And maltose also splits up into two monosaccharides, glucose and glucose on hydrolysis.
- Therefore the answer is all of them.
- The reaction schemes and their mechanisms are illustrated below:



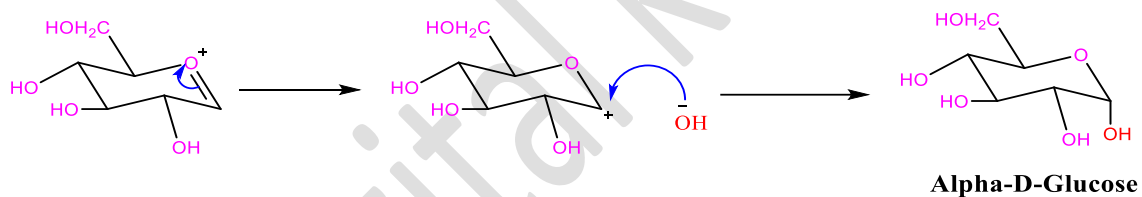
Mechanism of hydrolysis of Sucrose:

Mechanism:

Step 1:

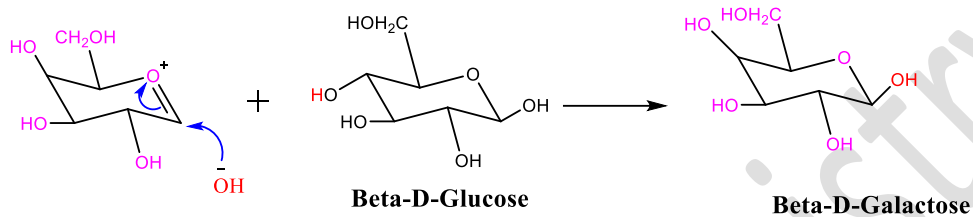
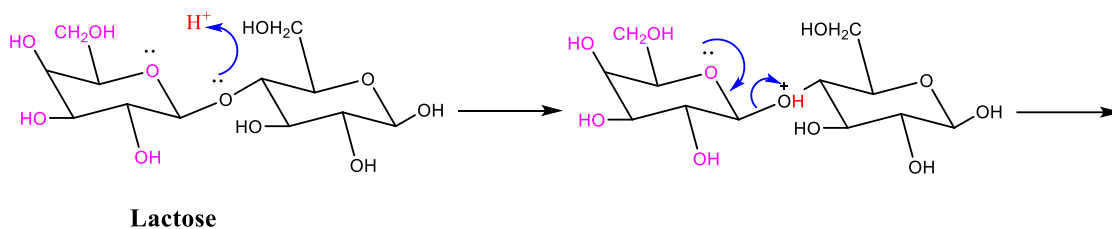


Step 2:



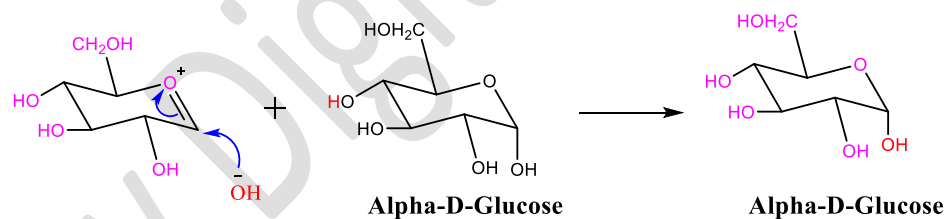
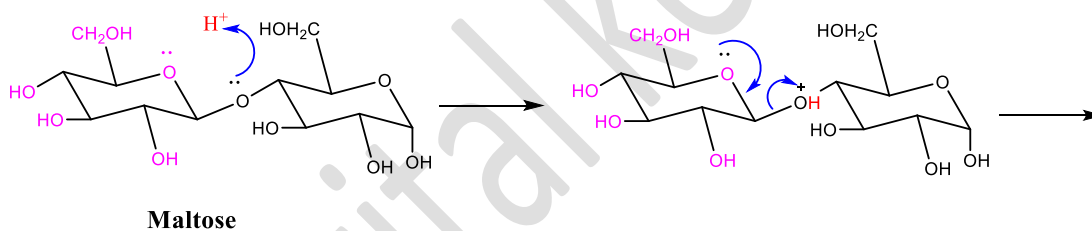
Mechanism of hydrolysis of Lactose:

Mechanism:



Mechanism of hydrolysis of Maltose:

Mechanism:



13) The formula of glucose is

- a) C₆H₁₂O₆
- b) C₁₂H₂₂O₁₁
- c) C₁₈H₃₂O₁₆
- d) None of them

Solution:

- There are six C, twelve H, and six O atoms in glucose.
- So, according to this composition the formula will be $C_6H_{12}O_6$.
- Therefore, the answer is $C_6H_{12}O_6$.

14) $C_{12}H_{22}O_{11}$ is the molecular formula of

- a) **Sucrose**
- b) Lactose
- c) Maltose
- d) All of them

Solution:

- Sucrose is a table sugar.
- It contains twelve C, twenty-two H, and eleven O atoms.
- So, according to this composition the formula will be $C_{12}H_{22}O_{11}$.
- Therefore, the answer is sucrose.

15) $C_6H_{12}O_6$ is the molecular formula of

- a) Glucose
- b) Fructose
- c) Galactose
- d) **All of them**

Solution:

- Glucose, fructose and galactose are monosaccharides.
- Each of the three sugars, glucose, fructose, and galactose, has six C, twelve H, and eleven O atoms.
- So, according to this composition the formula of all of these three will be $C_6H_{12}O_6$.
- Therefore, the answer is all of them.

16) $C_{18}H_{32}O_{16}$ is the molecular formula of

- a) Galactose
- b) Raffinose**
- c) Maltose
- d) All of them

Solution:

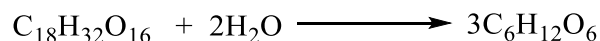
- Raffinose is a trisaccharide and it composed of eighteen C-atoms, thirty two H-atoms and sixteen O-atoms.
- So, according to this composition the formula of raffinose will be $C_{18}H_{32}O_{16}$.
- Therefore, the answer is Raffinose.

17) **Raffinose is a**

- a) Monosaccharide
- b) Disaccharide
- c) Trisaccharide**
- d) Polysaccharide

Solution:

- Raffinose is a trisaccharide because on hydrolysis it splits up into three monosaccharides.
- Therefore, the answer is trisaccharide.
- The reaction scheme and mechanism of hydrolysis of raffinose is illustrated below.



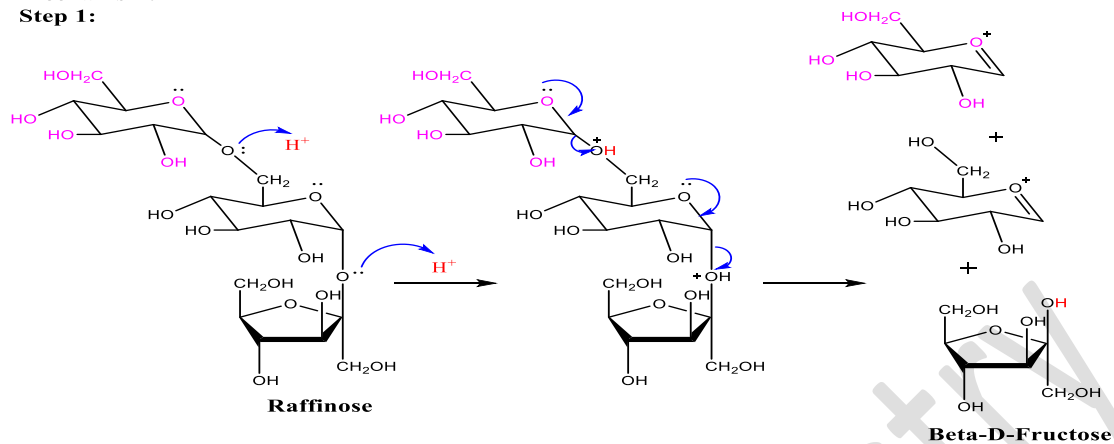
Mechanism of hydrolysis of Raffinose:

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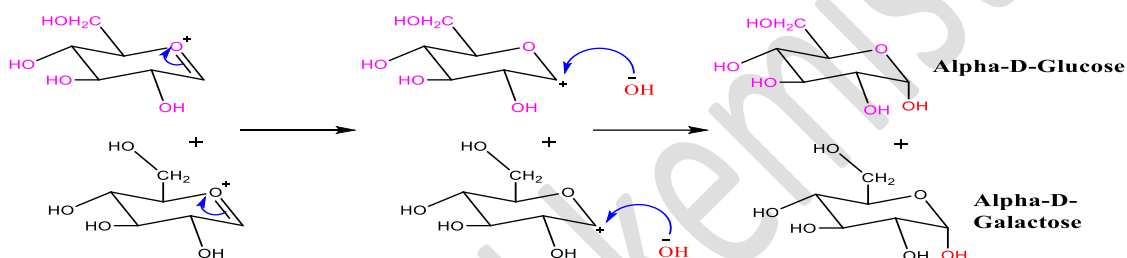
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Mechanism:
Step 1:



Step 2:



18) The monosaccharide which rotate plane polarized light clockwise is called

- Levorotatory
- Dextrorotatory
- Dextrose
- Both dextrorotatory and dextrose

Solution:

- The monosaccharides which rotate plane polarized light clockwise are called dextrorotatory sugars or dextrose sugars.
- Therefore the answer is both dextrorotatory and dextrose.

19) A monosaccharide which rotate plane polarized light anti-clockwise is

- a) **Levorotatory**
- b) Dextrorotatory
- c) Dextrose
- d) None of them

Solution:

- The monosaccharides which rotate plane polarized light anti-clockwise are called levorotatory sugars.
- Therefore the answer is levorotatory.

20) Trioses, tetroses, pentoses and hexoses are

- a) **Monosaccharides**
- b) Oligosaccharides
- c) Polysaccharides
- d) None of them

Solution:

- Monosaccharides with three C-atoms are called trioses.
- Monosaccharides with four C-atoms are called tetroses.
- Monosaccharides with five C-atoms are called pentoses.
- While, monosaccharides with six C-atoms are called hexoses.
- Therefore, the answer is monosaccharides.

21) Which sugar is used in drips to treat dehydration

- a) Glucose
- b) Manose
- c) Galactose
- d) **All of them**

Solution:

- Dextrorotatory sugars, commonly known as dextrose sugars, are used in drips and intravenously injected into patients to alleviate dehydration. They rotate plane polarized light clockwise.
- Drip treatments and intravenous injections of glucose, mannose, and galactose are all examples of dextrorotatory carbohydrates used to treat dehydration in patients.
- Therefore the answer is all of them.

22) The raw materials for the process of photosynthesis

- a) Water
- b) CO₂
- c) Sun-light
- d) **All of them**

Solution:

- Photosynthesis requires three main raw materials to initiate.
- The main raw materials are water, CO₂ and sun-light.
- Therefore, the answer is all of them.

23) Sugarcane is the rich source of

- a) **Sucrose**
- b) Lactose
- c) Maltose
- d) All of them

Solution:

The rich source of sucrose (common table sugar) is sugarcane. Therefore, the answer is sucrose.

24) Common table sugar is

- a) Maltose
- b) Lactose
- c) **Sucrose**
- d) Galactose

Solution:

Sucrose is the standard term for the table sugar that most of us use in the kitchen to sweeten tea and other baked goods. So, sucrose is the appropriate option.

25) 1g of glucose provides

- a) 10.5 kJ energy
- b) **15.6 KJ energy**
- c) 16.5 KJ energy
- d) None of them

Solution:

- Carbohydrates are the source of energy.
- 1g of glucose (monosaccharide) gives 15.6 KJ energy to our body.
- Therefore, the answer is 15.6 KJ energy.

26) Oranges are the rich source of

- a) Sucrose
- b) **Maltose**
- c) Lactose
- d) None of them

Solution:

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The rich source of maltose (disaccharide) is oranges. Therefore, the answer is maltose.

27) Milk is the rich source of

- a) Sucrose
- b) Maltose
- c) **Lactose**
- d) All of them

Solution:

The rich source of lactose (disaccharide) is milk. Therefore, the answer is lactose.

28) Cellulose and starch are

- a) Monosaccharides
- b) Oligosaccharides
- c) **Polysaccharides**
- d) None of them

Solution:

- Cellulose and starch have complex large structures, insoluble in water and are tasteless.
- These, characteristics belong to polysaccharides.
- Therefore, the answer is polysaccharides.

29) Amino acids are building blocks of

- a) **Proteins**
- b) Carbohydrates
- c) Lipids
- d) None of them

Solution:

- Proteins are the polymers of amino acids.
- So, it means that building blocks of proteins are amino acids.
- Therefore, the answer is proteins.

30) The bond held amino acids together is

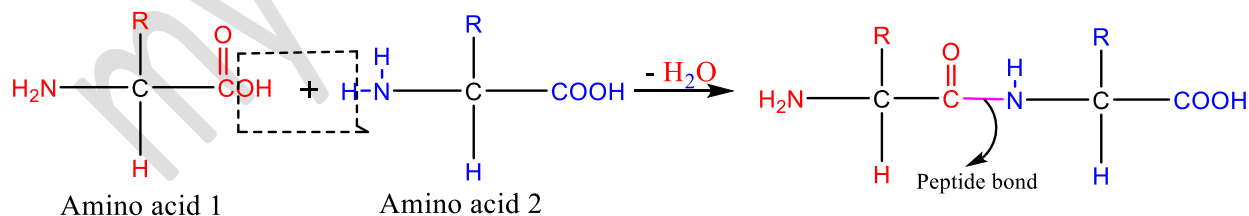
- a) Glycosidic bond
- b) **Peptide bond**
- c) Phosphodiester bond
- d) None of them

Solution:

- In proteins the amino acids are linked together by peptide bond.
- The bond created by removing the proton (H^+) from one amino acid NH_2 group and the hydroxyl (OH) from the carboxyl ($COOH$) group of another amino acid is called peptide bond.
- Peptide linkage holds two amino acids together in proteins.
- Therefore the answer is peptide bond.

Illustration of Peptide Bond:

- The following is a description of how peptide bonds form:



Formation of peptide bond

31) Peptide bond is formed by removal of

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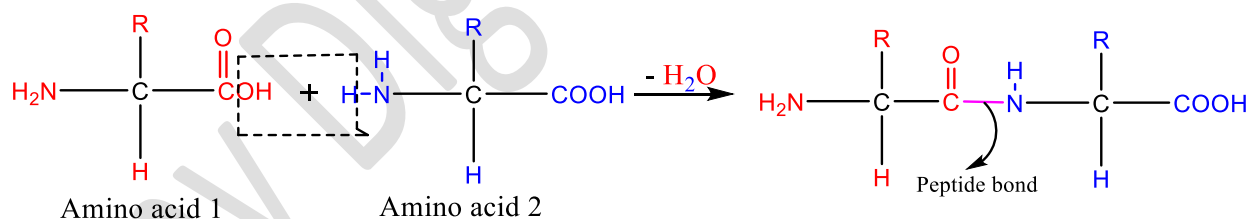
- H atom from one amino acids amino group and OH from another amino acids carboxyl group**
- H atom from one amino acids alkyl group and OH from another amino acids carboxyl group
- H atom from one amino acid and OH from another amino acids carboxyl group
- H atom from one amino acids carboxyl group and OH from another amino acids amino group

Solution:

- In proteins the amino acids are linked together by peptide bond.
- The bond formed by removing the proton (H^+) from one amino acid NH_2 group and the hydroxyl (OH) from the carboxyl ($COOH$) group of another amino acid is called peptide bond.
- Therefore the answer is H atom from one amino acids amino group and OH from another amino acids carboxyl group
- Peptide linkage holds two amino acids together in proteins.

Illustration of Peptide Bond:

- The following is a description of how peptide bonds form:



Formation of peptide bond

32) Structure of amino acid is composed of

- R group, carboxyl group, amino group and H atom bounded to central C atom**
- R group, carboxyl group, ester group and H atom bounded to central C atom
- R group, aldehyde group, amino group and H atom bounded to central C atom

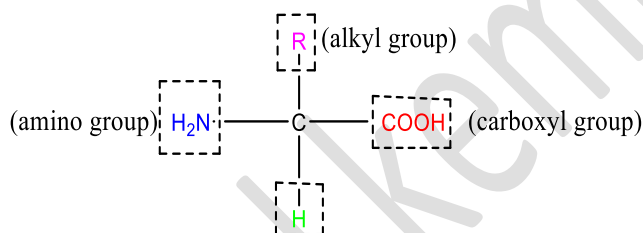
d) R group, carboxyl group, amino group and CH₃ atom bounded to central C atom

Solution:

The structure of amino acid have a one central C-atom. To this central C-atom, four components are attached. The four components attached to central C-atom are written below:

1. R group
2. Carboxyl group
3. Amino group
4. H atom

The amino acid's structure is illustrated below:



Therefore, the answer is R group, carboxyl group, amino group and H atom bounded to central C atom

33) Enzymes are

- a) Carbohydrates in nature
- b) Proteins in nature**
- c) Lipids in nature
- d) None of them

Solution:

Enzymes are made up of proteins. Therefore, the answer is protein in nature.

34) The biological catalysts are

- a) Fatty acids
- b) Enzymes**
- c) Glucose
- d) Both a and b

Solution:

- Enzymes work as biological catalysts.
- Because they catalyze the biological reactions that's why they are named as biological catalysts.
- Therefore, the answer is enzymes.

35) Our nails, hairs, skin, and antibodies are made up of

- a) Carbohydrates
- b) Proteins**
- c) Lipids
- d) All of them

Solution:

- A special type of protein called keratin is present in our nails, hairs and skin.
- Moreover defense cells of our body called antibodies are also made up of proteins.
- Therefore, the answer is proteins.

36) Fatty acids are the building blocks of

- a) Carbohydrates
- b) Proteins
- c) Lipids**
- d) None of them

Solution:

- Lipids are the polymers of fatty acids.

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- So, we can say that building blocks of lipids are fatty acids.
- Therefore, the answer is lipids.

37) Fat and oil are

- a) Carbohydrates
- b) Proteins
- c) Lipids**
- d) None of them

Solution:

- We know that lipids are non-polar and insoluble in water.
- Fat and oil are also non-polar and insoluble in water.
- However, obviously yes they are lipids.
- Therefore, the answer is lipids.

38) Fat is a lipid which is

- a) Liquid at room temperature
- b) Solid at room temperature**
- c) Gas at room temperature
- d) Both a and b

Solution:

- A lipid which is solid at room temperature is called fat.
- Fat is non-polar and insoluble in water which confirms that yes, fat is a lipid and solid at room temperature also.
- Therefore, the answer is solid at room temperature.

39) **Oil is a lipid which is**

- a) **Liquid at room temperature**
- b) Solid at room temperature
- c) Gas at room temperature
- d) Both a and b

Solution:

- A lipid which is liquid at room temperature is called oil.
- Oil is non-polar and insoluble in water which confirms that yes, oil is a lipid and liquid at room temperature also.
- Therefore, the answer is liquid at room temperature.

40) **Which compound is found in every living cell, serves as the information and control center?**

- a) Amino acid
- b) Protein
- c) Lipid
- d) **DNA**

Solution:

The DNA (nucleic acid) is found in each and every living cell and work as control center for a cell. Therefore the answer is DNA.

41) **Plants convert glucose into:**

- a) **Starch**
- b) Lipids
- c) Proteins
- d) Amino acids

Solution:

- Plants require sunlight for the process of photosynthesis, to synthesize glucose (food).
- Plants store excess glucose in the form of starch for future use.
- When in future plants face energy crisis then this starch again convert into glucose and provides energy to plants for survival.
- Therefore, the answer is starch.

42) Glucose is a

- a) Tetrose
- b) Pentose
- c) Disaccharide
- d) **Hexose**

Solution:

- Glucose is a monosaccharide.
- And we know that monosaccharides having six C-atoms are called hexoses.
- Glucose contains six C-atoms therefore it is a hexose.
- And the answer is hexose, therefore.

43) Which is not a dextrose sugar?

- a) Glucose
- b) Manose
- c) Galactose
- d) **Fructose**

Solution:

- Glucose, manose, and galactose are the monosaccharides, which rotate plane polarized light clockwise.

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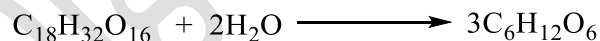
- And the monosaccharides which rotate plane polarized light clock wise are called dextrorotatory sugars or dextrose sugar.
- While fructose is a levorotatory sugar (which rotate plane polarized light anti-clock wise) not dextrorotatory.
- Therefore the answer is fructose.

44) Raffinose $C_{18}H_{32}O_{16}$ on hydrolysis forms _____ sugars.

- a) 1
- b) 2
- c) 3
- d) 3-9

Solution:

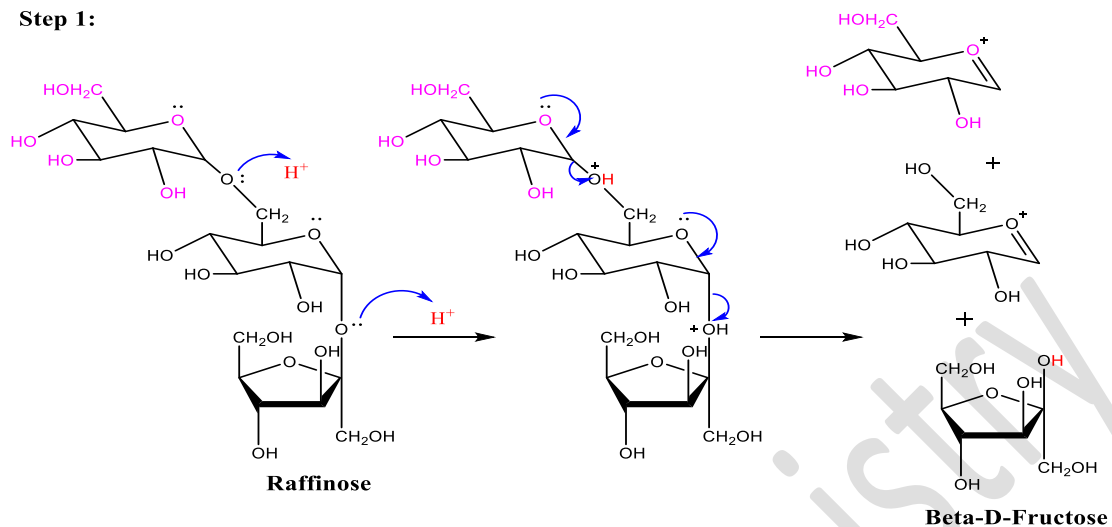
- Raffinose is a trisaccharide.
- Because on hydrolysis it gives three monosaccharides.
- Therefore the answer is 3.



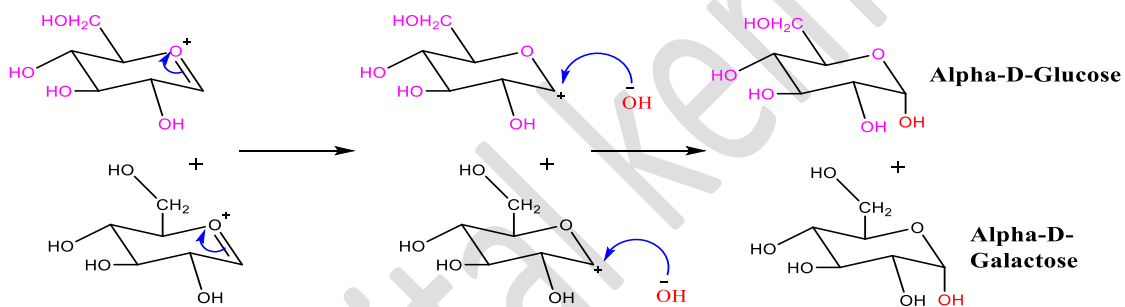
Mechanism of hydrolysis of Raffinose:

Mechanism:

Step 1:



Step 2:



45) Which is not source of starch?

- a) Wheat
- b) Rice
- c) Cotton
- d) **Potato**

Solution:

- Wheat, rice and cotton are rich sources of starch.
- While potato is not.
- Therefore, the answer is potato.

46) Which is not a protein?

- a) Gelatin
- b) Antibodies
- c) Enzymes
- d) Cholesterol**

Solution:

- We know that antibodies and enzymes are protein in nature.
- And when we heat bones, we also get a protein called gelatin.
- While cholesterol is a lipid not protein.
- Therefore, the answer is cholesterol.

47) Soaps and detergents are made from

- a) Proteins
- b) Carbohydrates
- c) Fat and oils**
- d) All of these

Solution:

Soap and detergents are made from fat and oil. Therefore the answer is fat and oil.

48) Which is not present in DNA?

- a) Deoxyribose sugar
- b) Ribose sugar**
- c) Phosphate unit
- d) Nitrogenous base

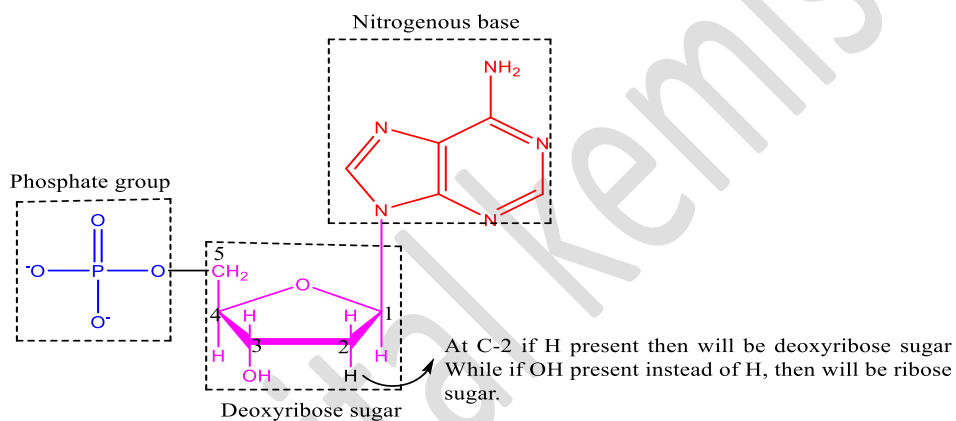
Solution:

Both DNA and RNA are made up of basic three components which are given below:

- Pentose sugar (either ribose or deoxyribose)
- Phosphate group
- Nitrogenous bases

- The difference between DNA and RNA is only due to the type of pentose sugar.
- If the pentose sugar is ribose then it will be RNA while, if the pentose sugar is deoxyribose then it will be DNA.

So, in DNA pentose sugar deoxyribose is present. Therefore the answer is ribose sugar.



Structure of nucleotide

49) **Raffinose $C_{18}H_{32}O_{16}$ is a**

- Monosaccharide
- Disaccharide
- Oligosaccharide**
- Polysaccharide

Solution:

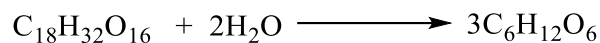
- We know that oligosaccharides on hydrolysis gives 2-10 monosaccharides.
- Therefore the oligosaccharides which give three monosaccharides on hydrolysis are called trisaccharides.
- Because on hydrolysis, raffinose gives three monosaccharide like; glucose, galactose and fructose.

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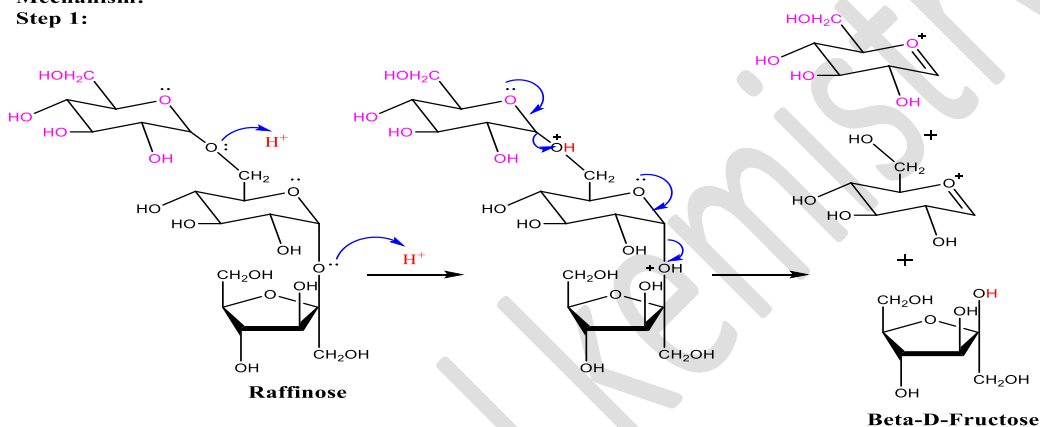
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- Therefore raffinose is an oligosaccharide (trisaccharide).
- Therefore the answer is oligosaccharide
- The reaction scheme is illustrated below showing, hydrolysis of raffinose gives $3C_6H_{12}O_6$, means three monomers.

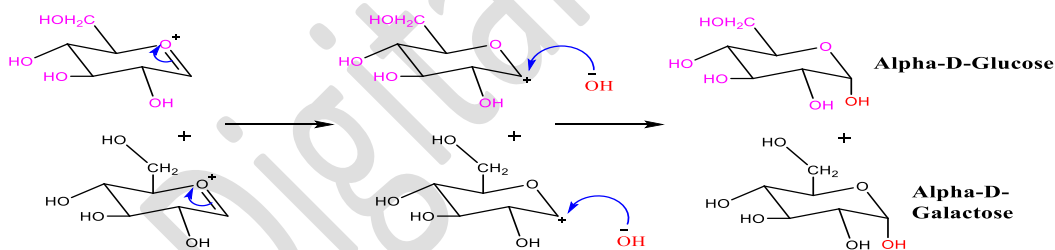


Mechanism of hydrolysis of Raffinose:

Mechanism:
Step 1:



Step 2:

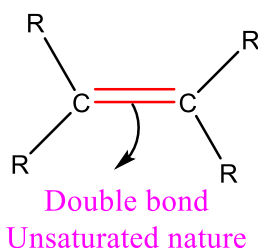


50) Ghee is

- Saturated in nature
- Un-saturated in nature**
- Super-saturated in nature
- None of the above

Solution:

- Ghee is unsaturated in nature because ghee contain double covalent bond between C-atoms.
- Therefore the answer is un-saturated in nature.



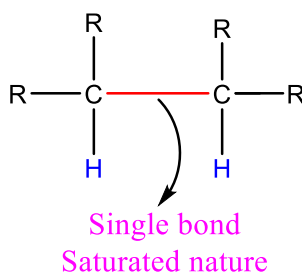
Un-Saturation in Ghee

51) Oil is

- a) Saturated in nature
- b) Un-saturated in nature
- c) Super-saturated in nature
- d) None of the above

Solution:

- Oil is saturated in nature because in oil only single covalent bonds are present between C-atoms.
- Therefore the answer is saturated in nature.



Saturation in oil

52) Nucleotides are building blocks of

- a) Carbohydrates
- b) Proteins
- c) Lipids
- d) **Nucleic acids**

Solution:

- Nucleotides are building blocks of nucleic acids.
- Or we can say that nucleic acids are the polymers of nucleotides.
- Therefore the answer is nucleic acids.

53) Structure of DNA was proposed by

- a) Sheldon
- b) Brown Hooke
- c) **J. Watson and Francis Crick**
- d) None of them

Solution:

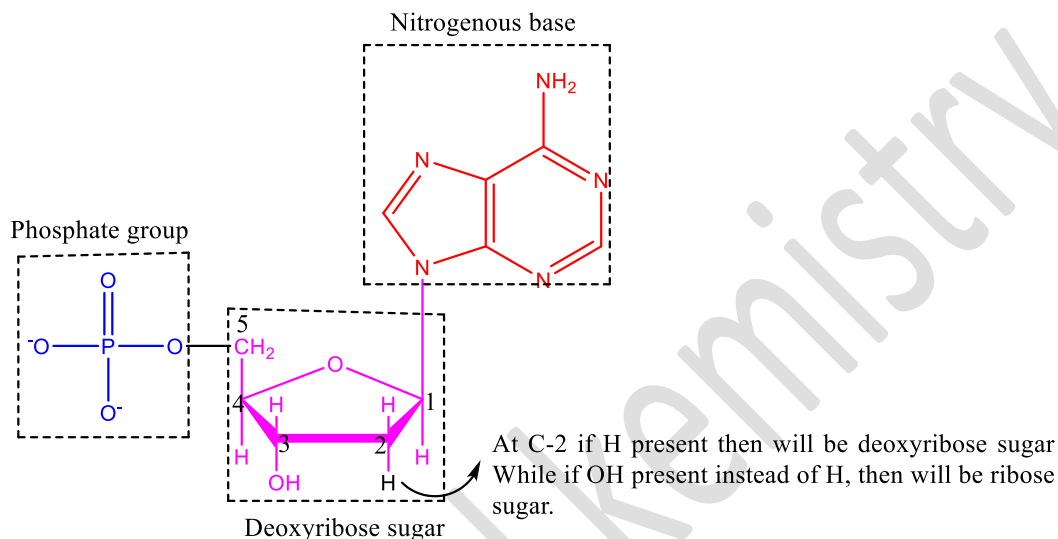
- Structure of DNA was proposed by J. Watson and Francis Crick.
- Therefore the answer is J. Watson and Francis Crick.

54) Structure of nucleic acid composed of

- a) Pentose sugar
- b) Nitrogenous bases
- c) Phosphate group
- d) **All of them**

Solution:

- Structure of nucleic acid is composed of pentose sugar (either ribose or deoxy ribose), nitrogenous bases and phosphate group.
- Therefore the answer is all of them.



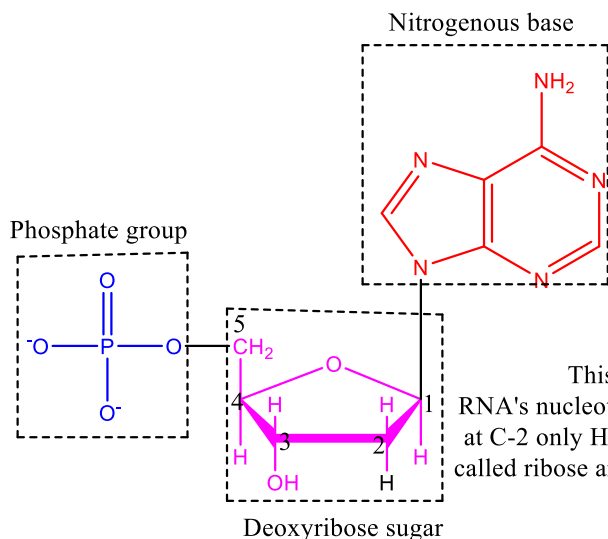
Structure of nucleotide

55) Structure of DNA is composed of

- a) Deoxyribose sugar
- b) Nitrogenous bases
- c) Phosphate group
- d) **All of them**

Solution:

- DNA is made up of nucleotides. Or we can say that DNA is a polymer of nucleotide.
- However the nucleotide of DNA is made up of deoxyribose sugar, nitrogenous bases, and phosphate group.
- Therefore the answer is all of them.



(Deoxyribose sugar)

This differentiates DNA from RNA. Because in RNA's nucleotide at C-2 OH is present. While in DNA's nucleotide at C-2 only H is present below the ring. Therefore, RNA's sugar is called ribose and DNA's sugar is called deoxyribose, due to absence of oxygen

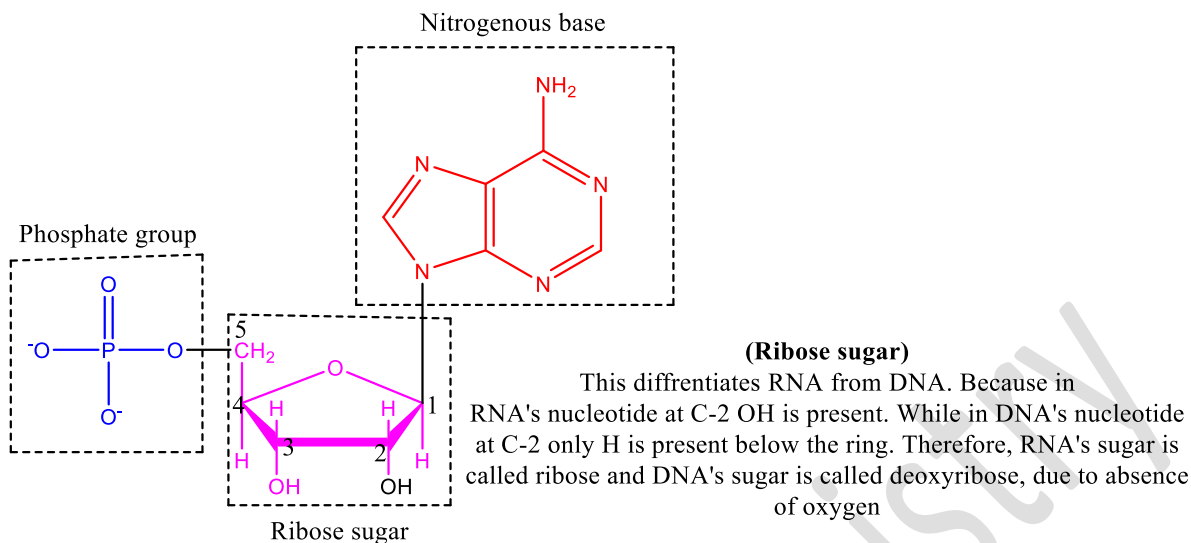
Structure of DNA's nucleotide

56) Structure of RNA is composed of

- a) Ribose sugar
- b) Nitrogenous bases
- c) Phosphate group
- d) All of them**

Solution:

- RNA is made up of nucleotides.
- Or we can say that RNA is a polymer of nucleotide.
- However the nucleotide of RNA is made up of ribose sugar, nitrogenous bases, and phosphate group.
- Therefore the answer is all of them.



Structure of RNA's nucleotide

57) **The nucleic acid which stands for protein synthesis is**

- DNA
- RNA**
- Both DNA and RNA
- None of them

Solution:

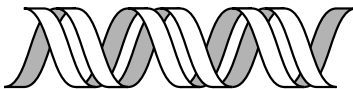
- DNA send messages to RNA in the form of codes, RNA read the message and then start synthesizing new protein.
- Therefore the answer is RNA.

58) **DNA is**

- Single stranded
- Double stranded**
- Both single and double stranded
- None of them

Solution:

DNA has double stranded helical structure. Therefore the answer is double stranded.



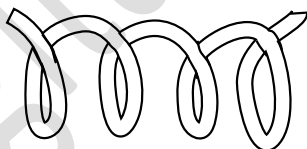
Structure of DNA

59) RNA is

- a) **Single stranded**
- b) Double stranded
- c) Both single and double stranded
- d) None of them

Solution:

The structure of RNA is single stranded. Therefore the answer is single stranded.



Structure of RNA

60) Structure of DNA was discovered in

- a) 1951
- b) 1952
- c) **1953**
- d) 1954

Solution:

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- In 1953 J. Watson and Francis discovered double stranded helical structure of DNA.
- Therefore the answer is 1953.

61) Two strands of DNA are spiral over each other with the help of

- a) Covalent bond
- b) Hydrogen bond**
- c) Ionic bond
- d) Vander Waal forces

Solution:

- The structure of DNA is double stranded and both the strands are spiral over each other's with the help of H-bonding.
- Therefore the answer is hydrogen bonding.

62) Who first used the word vitamin

- a) C. Eijkman
- b) Casmir funk**
- c) Watson
- d) Francis

Solution:

- A polish biochemist Casmir funk was the first scientist who used the word vitamin for the first time in 1912.
- Therefore the answer is Casmir funk.

63) On the basis of solubility vitamins are of

- a) Two types**
- b) Three types

- c) Four types
- d) Five types

Solution:

On the basis of solubility vitamins are classified into two classes which are given below:

- a) Fat soluble vitamins
- b) Water soluble vitamins

Therefore the answer is two types.

64) Fat soluble vitamins are

- a) Vitamin A, B and C
- b) **Vitamin A, D, E and K**
- c) Vitamin D, B and C
- d) All of them

Solution:

- Vitamin-A, Vitamin-D, vitamin-E and vitamin-K are soluble in fat not in water.
- Therefore the answer is Vitamin A, D, E and K.

65) Water soluble vitamins are

- a) Vitamin A and B
- b) **Vitamin B and C**
- c) Vitamin D and E
- d) Vitamin E and K

Solution:

Vitamin-B and vitamin-C both are soluble in water. Therefore the answer is vitamin B and C.

66) The vitamin found in eyes is

- a) **Vitamin-A**
- b) Vitamin-B
- c) Vitamin-C
- d) Vitamin-D

Solution:

Vitamin-A found in our eyes and helps us in sight. Therefore the answer is vitamin-A.

67) The vitamins found in skin are

- a) Vitamin-B, and C
- b) Vitamin-E and K
- c) **Vitamin-A and B**
- d) Vitamin-D and K

Solution:

Vitamin-A and vitamin-B both are found in our skin. Therefore the answer is vitamin-A and B.

68) The vitamin found in teeth and bones is

- a) Vitamin-A
- b) Vitamin-B
- c) Vitamin-C
- d) **Vitamin-D**

Solution:

Vitamin-D is found in our bones and teeth and gives strength to them. Therefore the answer is vitamin-D.

69) The vitamin helps in blood clotting is

- a) Vitamin-A
- b) Vitamin-C
- c) Vitamin-E
- d) **Vitamin-K**

Solution:

Vitamin-K helps in clotting of blood. Therefore the answer is vitamin-K.

70) The vitamin used as an antioxidant is

- a) Vitamin-A
- b) Vitamin-B
- c) **Vitamin-E**
- d) Vitamin-K

Solution:

Vitamin-E used as an antioxidant. Therefore the answer is vitamin-E.

71) The vitamin helps in healing wounds is

- a) Vitamin-K
- b) Vitamin-D
- c) Vitamin-A
- d) **Vitamin-C**

Solution:

Vitamin-C helps in healing of wounds. Therefore the answer is vitamin-C.

72) Deficiency of vitamin A causes

- a) Night blindness
- b) Dryness of skin
- c) Scurvy
- d) **Both night blindness and dryness of skin**

Solution:

- Deficiency of vitamin-A causes night blindness and dryness of skin.
- Therefore the answer is both night blindness and dryness of skin.

73) Deficiency of vitamin B causes

- a) Skin diseases
- b) Anemia , Bleeding of gums
- c) Inflammation of tongue
- d) **All of the above**

Solution:

- Deficiency of vitamin-B cause skin diseases, anemia, bleeding of gums, and inflammation of tongue.
- Therefore the answer is all of the above.

74) Deficiency of vitamin C causes

- a) Rickets
- b) **Scurvy**
- c) Delayed in Blood clotting

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- d) Both rickets and scurvy

Solution:

Scurvy is a disease caused due to deficiency of vitamin-C. Therefore the answer is scurvy.

75) Deficiency of vitamin D causes

- a) Sterility
- b) Rickets
- c) Osteomalacia
- d) **Both rickets and osteomalacia**

Solution:

- Rickets and osteomalacia are the diseases caused due to deficiency of vitamin-D.
- Therefore the answer is both rickets and osteomalacia.

76) Deficiency of vitamin E causes

- a) Sterility
- b) Delayed in blood clotting
- c) Haemolysis of red blood cells (RBC's)
- d) **Both sterility and haemolysis of red blood cells (RBC's)**

Solution:

- The diseases e.g. sterility and haemolysis of red blood cells (RBC's) are caused due to deficiency of vitamin-E.
- Therefore the answer is both sterility and haemolysis of red blood cells (RBC's).

77) Deficiency of vitamin K causes

- a) **Haemorrhage (delayed in blood clotting)**
- b) Skin diseases
- c) Osteomalacia
- d) None of them

Solution:

- Haemorrhage (delayed in blood clotting) is the disease caused due to deficiency of vitamin-K.
- Therefore the answer is Haemorrhage (delayed in blood clotting).

78) Milk, butter, eggs and fish oil are the sources of

- a) Vitamin-A
- b) Vitamin-B
- c) Vitamin-D
- d) **Both vitamin-A and vitamin-D**

Solution:

- Milk, butter, eggs, and fish oil contain vitamin-A and Vitamin-D.
- Therefore the answer is both vitamin-A and vitamin-D.

79) Fresh green vegetables are the rich source of

- a) Vitamin-A
- b) Vitamin-B
- c) Vitamin-C
- d) **All of the above**

Solution:

- Fresh green vegetables contain vitamin-A, vitamin-B, and vitamin-C.
- Therefore the answer is all of the above.

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