# 2. Biological Molecules

## 2.2 Carbohydrates and lipids

## Paper 1

Question Paper

**1** The table shows the number of carbon atoms and the number of carbon–carbon double bonds in molecules of three triglycerides and the fatty acids they contain.

The information is shown in the format 'number of carbon atoms : number of carbon–carbon double bonds'.

| triglyceride | fatty acid 1 | fatty acid 2 | fatty acid 3 |
|---|---|---|---|
| 54 : 1 | 15 : 0 | 18 : 0 | 18 : 1 |
| 56 : 4 | 17 : 0 | X | 18 : 2 |
| 57 : 3 | 18 : 0 | 18 : 1 | 18 : 2 |

Which description matches fatty acid 2 of the 56 : 4 triglyceride, identified in the table as X?

**A** saturated with 17 carbon atoms

**B** saturated with 18 carbon atoms

**C** unsaturated with 17 carbon atoms

**D** unsaturated with 18 carbon atoms

**2** Which row is correct for cellulose?

| | rotation of alternate monomers by 180° | shape of molecule | hydrogen bonds between molecules |
|---|---|---|---|
| **A** | ✓ | branched | ✗ |
| **B** | ✗ | branched | ✓ |
| **C** | ✗ | unbranched | ✗ |
| **D** | ✓ | unbranched | ✓ |

key

✓ = present

✗ = not present

**3** A naturally occurring polysaccharide synthesised in a plant is a branched chain of $\alpha$-glucose.

The straight parts of the molecule are linked by $\alpha$-1,6 glycosidic bonds with only a small number of branches which are linked by either an $\alpha$-1,3 glycosidic bond or an $\alpha$-1,4 glycosidic bond.

Which polysaccharide has a structure **most** similar to that described?

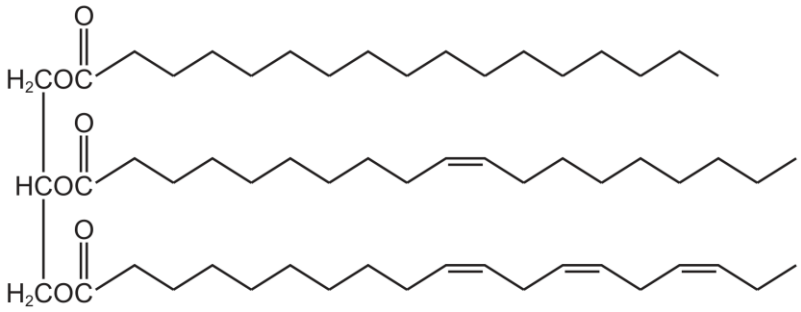
**A** amylopectin

**B** amylose

**C** cellulose

**D** glycogen

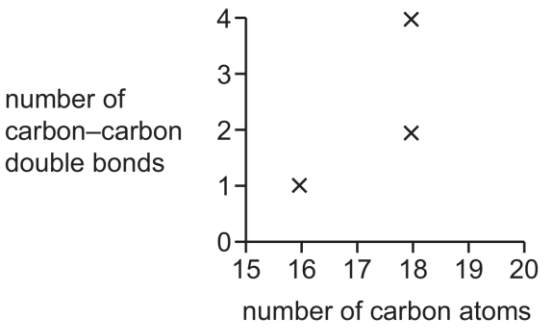
**4** The diagram shows a triglyceride.



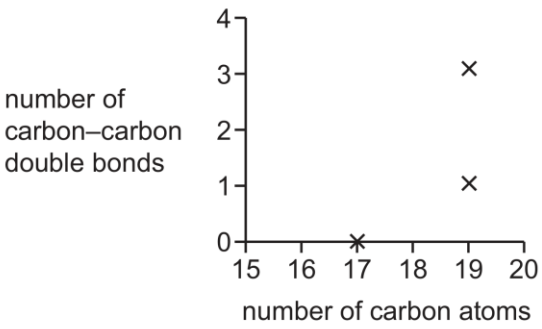

An enzyme was used to digest this triglyceride into glycerol and fatty acids.

Which scatter plot correctly represents each fatty acid component of the triglyceride?

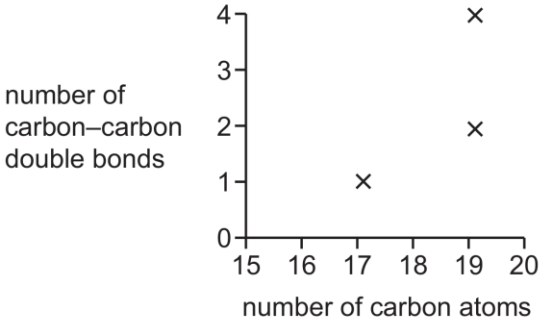
**A**



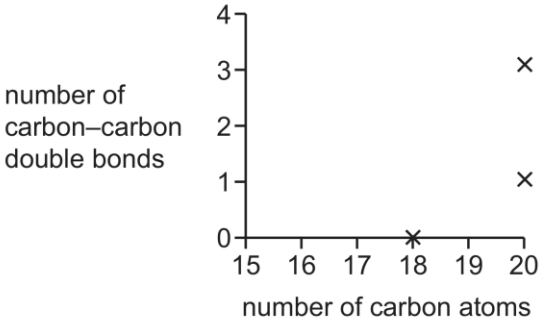

**B**



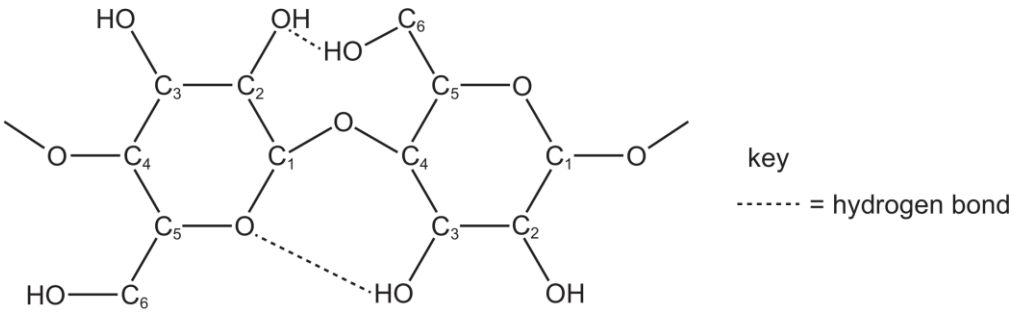

**C**




**D**



**5** The diagram shows how the alternating nature of β-glucose monomers along a chain allows hydrogen bonds to form between consecutive monomers.




Hydrogen bonds in cellulose affect the tensile strength (the ability to withstand pulling forces without breaking).

How do the hydrogen bonds shown in the diagram help cellulose function as a suitable material for a cell wall?

**A** The hydrogen bonds add additional tensile strength along individual cellulose molecules within the cell wall.

**B** The hydrogen bonds create stronger crosslinks between adjacent cellulose molecules, adding to the tensile strength of the cell wall.

**C** Stronger hydrogen bonds form between adjacent cellulose molecules, adding to the tensile strength of the cell wall.

**D** Cellulose molecules within a cellulose microfibril have a stronger link between them, increasing the tensile strength of the cellulose microfibrils.

**6** Which feature of glycogen distinguishes it from starch?

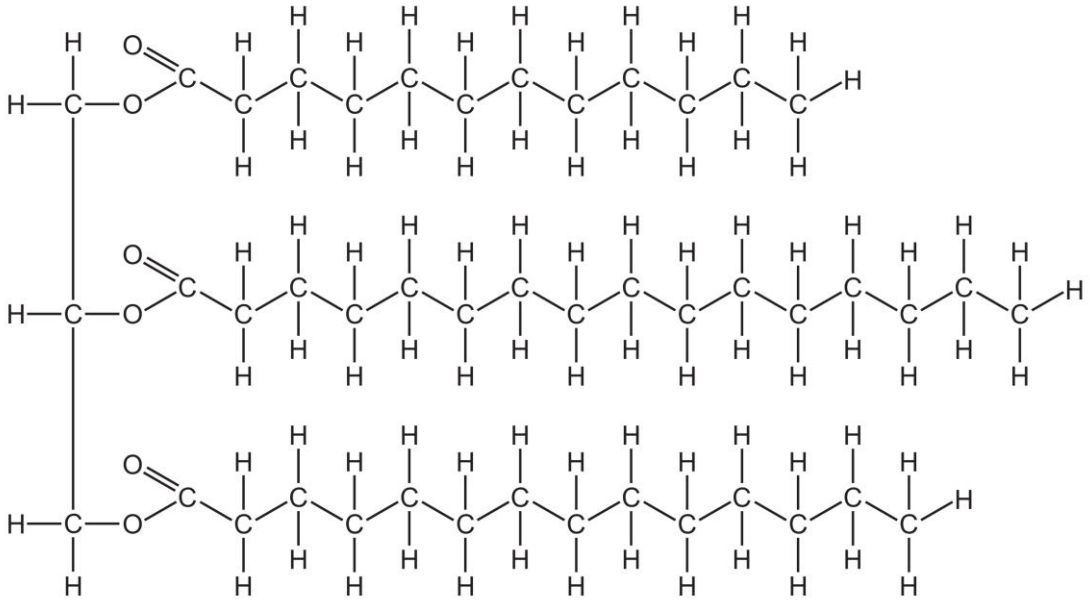
**A** All glycogen molecules are highly branched.

**B** All glycogen molecules are polysaccharides.

**C** All glycogen molecules contain α-glucose.

**D** All glycogen molecules contain 1,4-glycosidic bonds.

**7** The diagram shows a biological molecule.



Which molecules would be produced if this biological molecule was hydrolysed?

**A** amino acids and glycerol only

**B** amino acids, glycerol and water

**C** fatty acids and glycerol only

**D** fatty acids, glycerol and water

**8** Phospholipids are formed in a similar way to triglycerides.

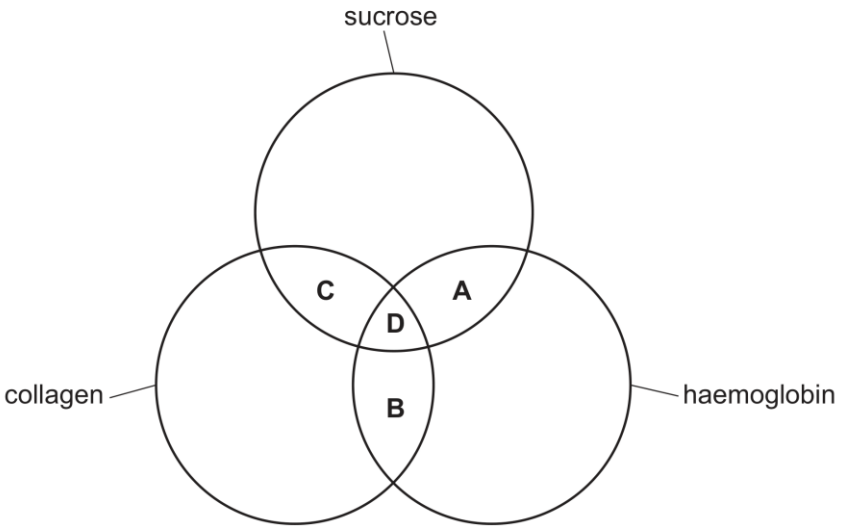
A sample contained six phospholipid molecules.

- The molecular weight of a phosphate ion is 95 g $mol^{-1}$.
- The molecular weight of each individual fatty acid in this sample was found to be 282 g $mol^{-1}$.
- The molecular weight of glycerol is 92 g $mol^{-1}$.
- The molecular weight of water is 18 g $mol^{-1}$.

What is the molecular weight of the sample in g $mol^{-1}$?

**A** 2598 **B** 4182 **C** 4506 **D** 4830

**9** Which molecules contain at least two double bonds?




**10** What describes cellulose?

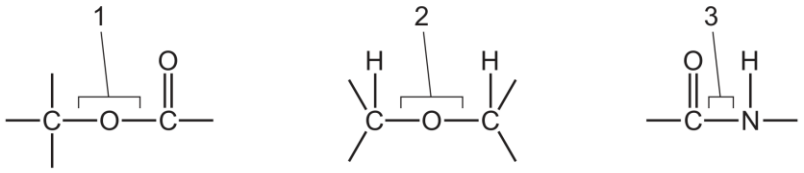
**A** a branched chain of 1-4 $\alpha$-glucose

**B** a branched chain of 1-4 $\beta$-glucose

**C** an unreactive linear chain of 1-4 $\alpha$-glucose

**D** an unreactive linear chain of 1-4 $\beta$-glucose

**11** The diagrams show three types of covalent bonds.

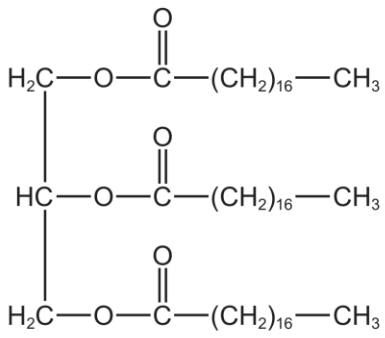



Which bonds will be found in glycolipids and glycoproteins?

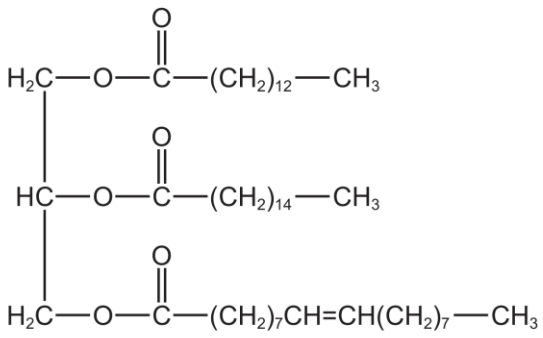
| | bond 1 | bond 2 | bond 3 |
|---|---|---|---|
| **A** | glycolipids only | glycolipids and glycoproteins | glycoproteins only |
| **B** | glycolipids and glycoproteins | glycolipids only | glycoproteins only |
| **C** | glycoproteins only | glycolipids only | glycolipids and glycoproteins |
| **D** | glycoproteins only | glycolipids and glycoproteins | glycolipids only |

**12** Which molecules would be found in an oil (liquid) more than in a fat (solid)?

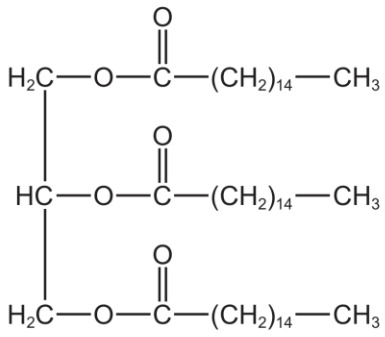
1



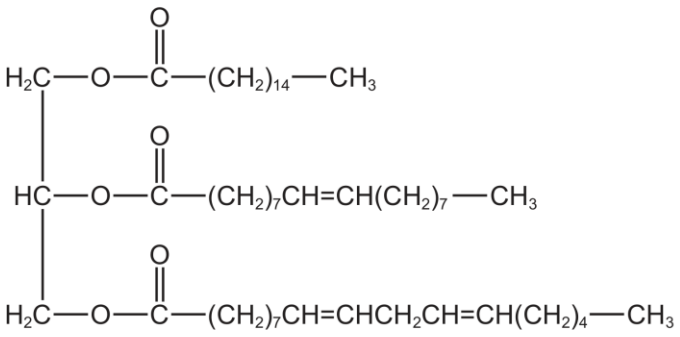
2



3



4



**A** 1 and 3 **B** 1 and 4 **C** 2 and 3 **D** 2 and 4

**13** Which statements about amylopectin and glycogen are correct?

1 Amylopectin and glycogen contain 1-4 glycosidic bonds.

2 Amylopectin contains β-glucose.

3 Glycogen contains more 1-6 branches than amylopectin.

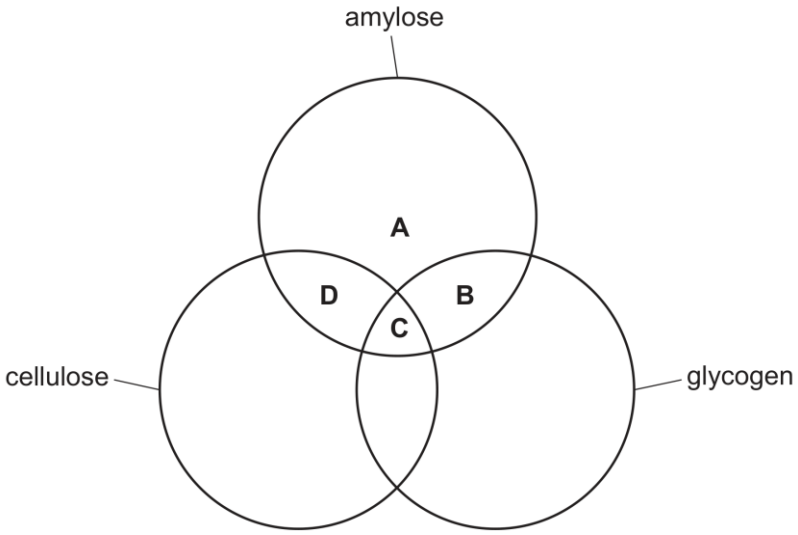
**A** 1 and 2 **B** 1 and 3 **C** 1 only **D** 2 and 3

**14** How many statements about fatty acids are correct?

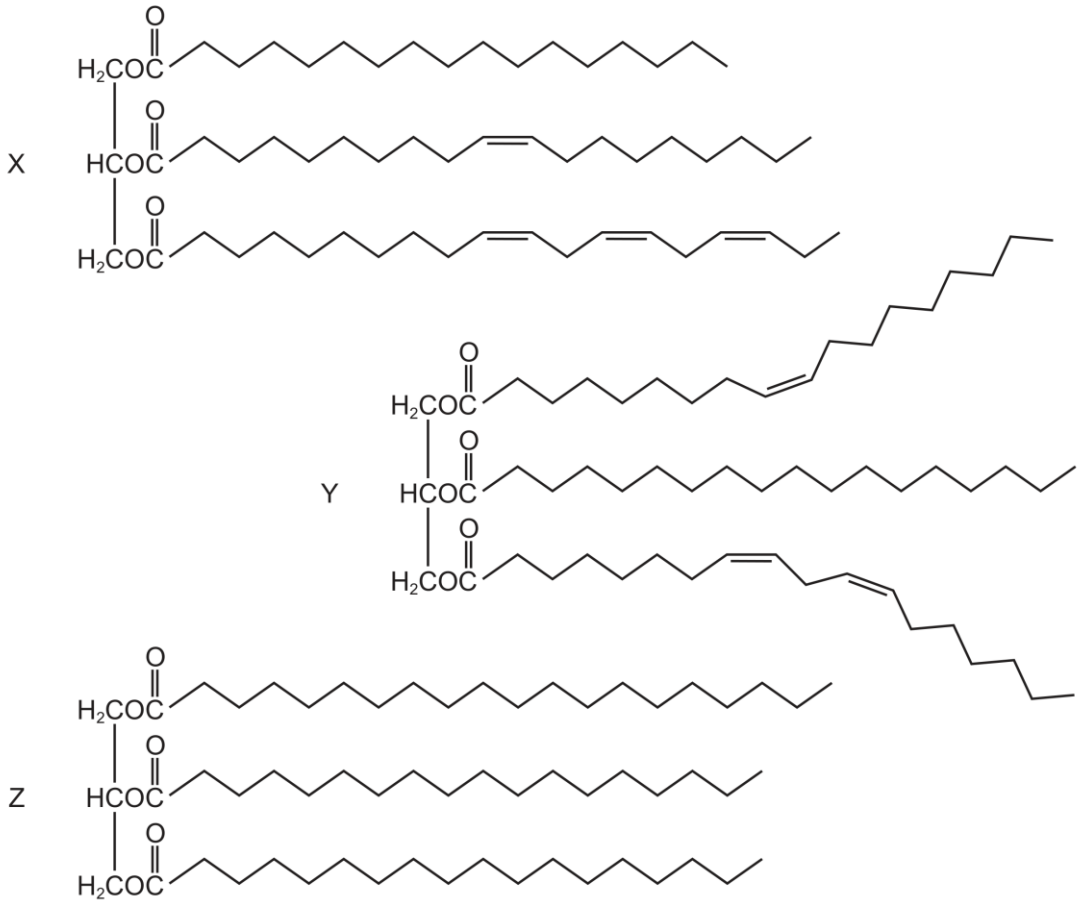
- Fatty acids are either saturated or unsaturated.
- Fatty acids always have at least two double bonds.
- Long chains of fatty acids are very good energy stores.
- Fatty acids are insoluble in water and do not affect the water potential of the cell.

**A** 1 **B** 2 **C** 3 **D** 4

**15** Which molecules contain 1,4-glycosidic bonds?



**16** The diagram shows three triglycerides, X, Y and Z.




Which row is correct for these triglycerides?

| | contains saturated fatty acids | contains unsaturated fatty acids | contains more than two different fatty acids |
|---|---|---|---|
| **A** | X, Y and Z | X and Y | X and Y |
| **B** | X, Y and Z | Z | X and Y |
| **C** | X and Y | X, Y and Z | X, Y and Z |
| **D** | Z | X and Y | X, Y and Z |

**17** Some foods contain hydrogenated vegetable fats. These are unsaturated fats that have been converted to saturated fats.

Which property of the fats will have changed?

**A** Their hydrocarbon chains will fit together more closely.

**B** Their solubility in water will increase.

**C** They will have more double bonds in their molecules.

**D** They will remain liquid at room temperature.

**18** Which statement is correct?

**A** Amylase, ribose and phospholipid are all macromolecules.

**B** Cellulose, glucose and catalase are all polymers.

**C** Deoxyribose, fructose and ribose are all monosaccharides.

**D** Sucrose, deoxyribose and amylopectin are all polysaccharides.

**19** Which statement is correct?

**A** Cellulose, glycogen and amylopectin are all polymers.

**B** Ribose, amylase and phospholipid are all macromolecules.

**C** Starch, glucose and amylose are all monomers.

**D** Sucrose, deoxyribose and amylopectin are all polysaccharides.

**20** Long chain, saturated fatty acids change from solid to liquid at higher temperatures compared with short chain, unsaturated fatty acids.

Which fatty acids would be more likely to form triglycerides in mammals that live in cold climates?

**A** long chain saturated

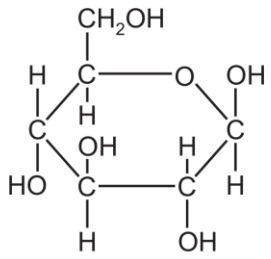
**B** long chain unsaturated

**C** short chain saturated

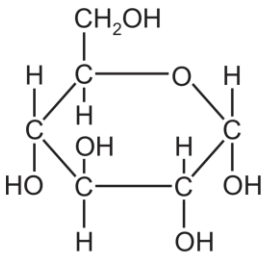
**D** short chain unsaturated

**21** Which diagram shows the ring form of β-glucose?

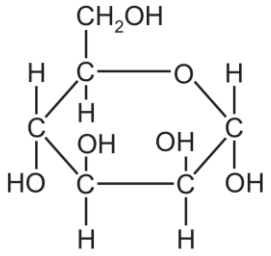
**A**



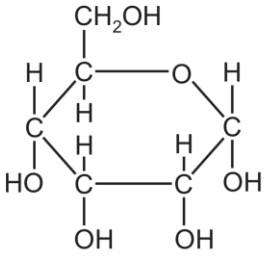
**B**



**C**



**D**



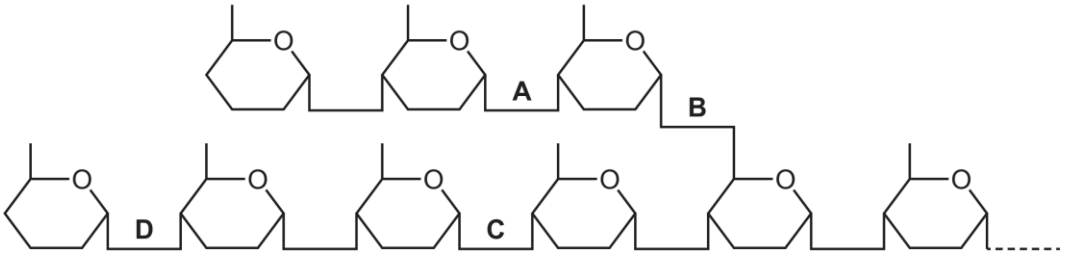
**22** Which row correctly matches the example with the type of molecule?

| | disaccharide | macromolecule | monomer | polymer |
|---|---|---|---|---|
| **A** | fructose | glycogen | glucose | starch |
| **B** | starch | haemoglobin | ribose | glycogen |
| **C** | maltose | ribonucleic acid | sucrose | cellulose |
| **D** | sucrose | cellulose | fructose | collagen |

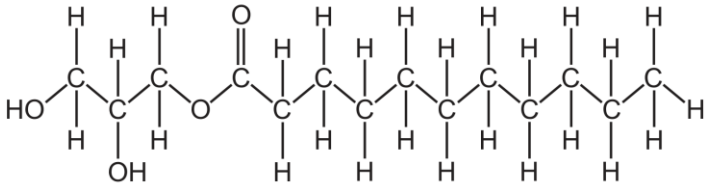
**23** The enzyme α-amylase hydrolyses amylopectin but it is not able to hydrolyse some of its glycosidic bonds.

- It only hydrolyses 1,4 glycosidic bonds.
- It is not able to hydrolyse the last bond of a chain.
- It is not able to hydrolyse the bonds in a chain of three units attached by a 1,6 glycosidic bond to another chain.

Which glycosidic bond can be hydrolysed by α-amylase?




**24** Molecule X is a lipid.



molecule X

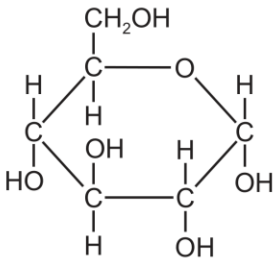
Which row is correct for molecule X and a triglyceride?

| | molecule X contains | triglyceride contains |
|---|---|---|
| **A** | one unsaturated fatty acid | saturated fatty acids |
| **B** | no ester bonds | three ester bonds |
| **C** | one fatty acid | three fatty acids |
| **D** | two fatty acids | three fatty acids |

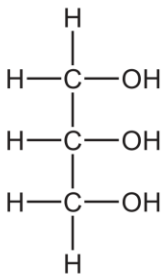
**25** The diagrams show some biological molecules.

Which biological molecule forms a polymer with a structural role in plants?

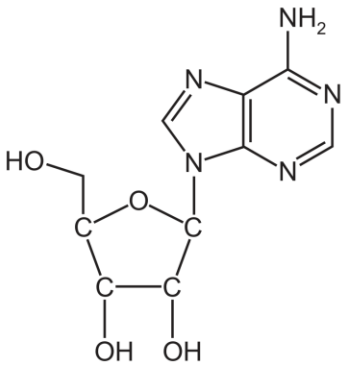
**A**



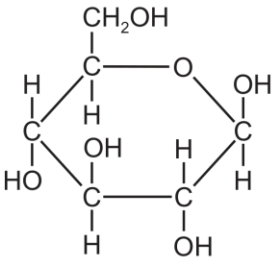
**B**



**C**



**D**



**26** Which molecule is a disaccharide **and** a reducing sugar?

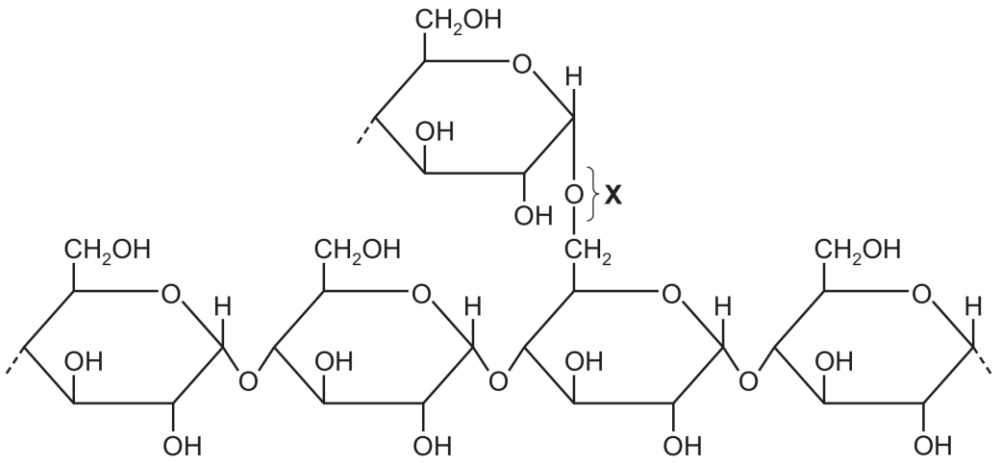
**A** fructose

**B** glucose

**C** maltose

**D** sucrose

**27** The diagram shows bonding in part of a polysaccharide.




Which type of glycosidic bond is shown at position **X**?

**A** α-1,4 **B** α-1,6 **C** β-1,4 **D** β-1,6

**28** Which statements about triglycerides **and** phospholipids are correct?

1 Fatty acids in a triglyceride may be saturated or unsaturated but in a phospholipid they are always saturated.

2 Triglycerides and phospholipids both have a hydrophobic region.

3 Triglycerides are non-polar molecules and phospholipids are polar molecules.

**A** 1 and 2 **B** 1 only **C** 2 and 3 **D** 3 only

**29** Which pair of molecules only includes macromolecules that can be found in animal cells?

**A** amylase and amylopectin

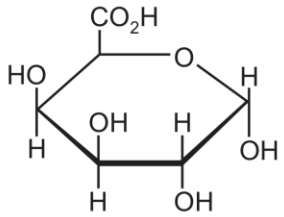
**B** collagen and glycogen

**C** deoxyribose and starch

**D** sucrose and haemoglobin

**30** Homogalacturonan is a polysaccharide found in plant cell walls.

The diagram shows a molecule of the monomer used to form homogalacturonan.




A student studied the structure of this monomer and compared it with the structure of the monomer used to form cellulose.

Which carbon atoms in the monomer in the diagram have hydroxyl groups arranged in different positions to those found in the cellulose monomer?

**A** carbon one and carbon four

**B** carbon one only

**C** carbon three and carbon four

**D** carbon three only

**31** Which statement is correct for triglycerides and phospholipids?

**A** A phosphate group is joined to a glycerol molecule.

**B** Hydrocarbon chains may be saturated or unsaturated.

**C** They are polar molecules.

**D** They contain three ester bonds.

**32** Which row is correct for carbohydrates?

| | macromolecule | monomer | polymer |
|---|---|---|---|
| **A** | sucrose | starch | α-glucose |
| **B** | glycogen | sucrose | starch |
| **C** | α-glucose | glycogen | sucrose |
| **D** | starch | α-glucose | glycogen |

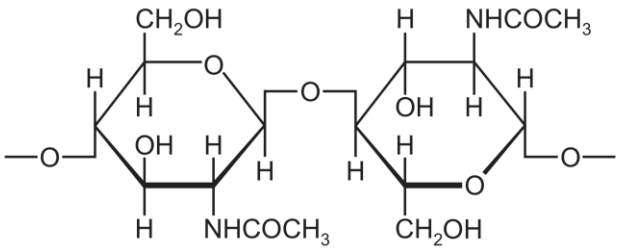
**33** Which shows the correct general formula for glycogen?

**A** $(C_5H_{10}O_5)_n$ **B** $(C_5H_{10}O_6)_n$ **C** $(C_6H_{10}O_5)_n$ **D** $(C_6H_{12}O_6)_n$

**34** Chitin is a structural polysaccharide found in the hard, outer shells of animals such as crabs.

Chitin is made of chains of amino sugars that contain NH groups.

The diagram shows two sugars in the chain of a chitin molecule.




Which polysaccharide is most like chitin?

**A** amylopectin

**B** amylose

**C** cellulose

**D** glycogen

**35** Four fatty acids and their formulae are listed.

| | |
|---|---|
| caprylic acid | $CH_3(CH_2)_6COOH$ |
| lauric acid | $CH_3(CH_2)_{10}COOH$ |
| oleic acid | $CH_3(CH_2)_7CH{=}CH(CH_2)_7COOH$ |
| palmitoleic acid | $CH_3(CH_2)_5CH{=}CH(CH_2)_7COOH$ |

Which fatty acids are saturated?

**A** caprylic acid and lauric acid

**B** caprylic acid and oleic acid

**C** lauric acid and palmitoleic acid

**D** oleic acid and palmitoleic acid

**36** One molecule of X is formed by a single condensation reaction releasing one molecule of water.

What is molecule X?

**A** a disaccharide

**B** a phospholipid

**C** a polysaccharide

**D** a triglyceride

**37** The table shows some information about carbohydrate polymers.

Which row describes glycogen?

| | α-1,4 glycosidic bonds | α-1,6 glycosidic bonds | shape of molecule | function of molecule |
|---|---|---|---|---|
| **A** | ✓ | ✓ | branched | storage |
| **B** | ✓ | ✗ | helical | storage |
| **C** | ✗ | ✓ | branched | structural |
| **D** | ✗ | ✗ | helical | structural |

key

✓ = present

✗ = not present

**38** Which general formula is correct for monosaccharides such as fructose?

**A** $(CHO)_n$ **B** $(CH_2O)_n$ **C** $(CHO_2)_n$ **D** $(C_2HO)_n$

**39** Which statements can be used to describe the structure of cellulose?

1 a polymer of glucose monomers linked by β-1,4 glycosidic bonds

2 a polysaccharide of hexose monomers

3 an unbranched macromolecule made of β-glucose monomers

**A** 1, 2 and 3 **B** 1 and 2 only **C** 1 and 3 only **D** 2 and 3 only

**40** Complete hydrolysis of polysaccharides requires all the glycosidic bonds between the monomers to be broken.

Enzyme X only breaks $\alpha$-1,4 glycosidic bonds.

Which row shows how completely enzyme X can hydrolyse molecules of glycogen and amylose?

| | glycogen | amylose |
|---|---|---|
| **A** | + | ++ |
| **B** | ++ | + |
| **C** | ++ | – |
| **D** | – | + |

key

– no hydrolysis

\+ some hydrolysis

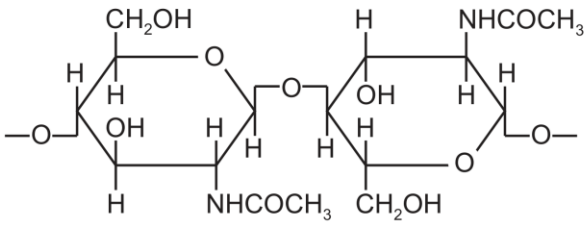
++ most hydrolysis

**41** Maltose and sucrose are disaccharides. Maltose is formed from two molecules of glucose, whilst sucrose is formed from fructose and glucose.

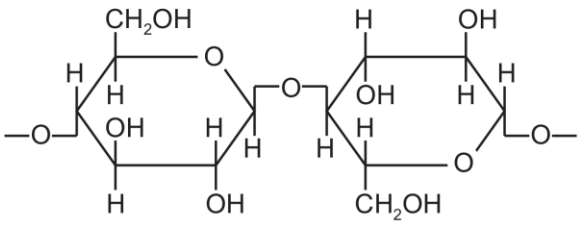
Which row shows the molecular formulae of the two disaccharides?

| | maltose | sucrose |
|---|---|---|
| **A** | $C_{12}H_{22}O_{11}$ | $C_{12}H_{22}O_{11}$ |
| **B** | $C_{12}H_{22}O_{11}$ | $C_{12}H_{24}O_{12}$ |
| **C** | $C_{12}H_{24}O_{12}$ | $C_{12}H_{22}O_{11}$ |
| **D** | $C_{12}H_{24}O_{12}$ | $C_{12}H_{24}O_{12}$ |

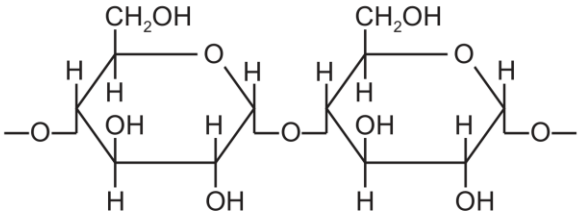
**42** The diagrams show short sections of some common polysaccharides and modified polysaccharides.



1



2



3

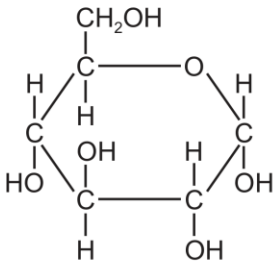
The polysaccharides can be described as:

- F is composed of β-glucose monomers with 1,4 glycosidic bonds
- G is composed of α-glucose monomers with 1,4 glycosidic bonds
- H is composed of N-acetylglucosamine monomers with β-1,4 glycosidic bonds.

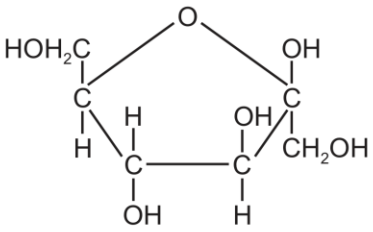
Which row correctly matches the numbered diagrams to the descriptions of the polysaccharides?

| | polysaccharide F | polysaccharide G | polysaccharide H |
|---|---|---|---|
| **A** | 2 | 1 | 3 |
| **B** | 2 | 3 | 1 |
| **C** | 3 | 1 | 2 |
| **D** | 3 | 2 | 1 |

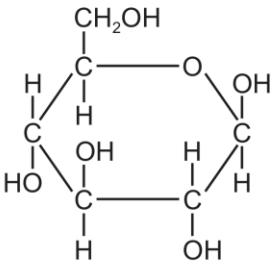
**43** The diagrams show three hexoses.



1



2

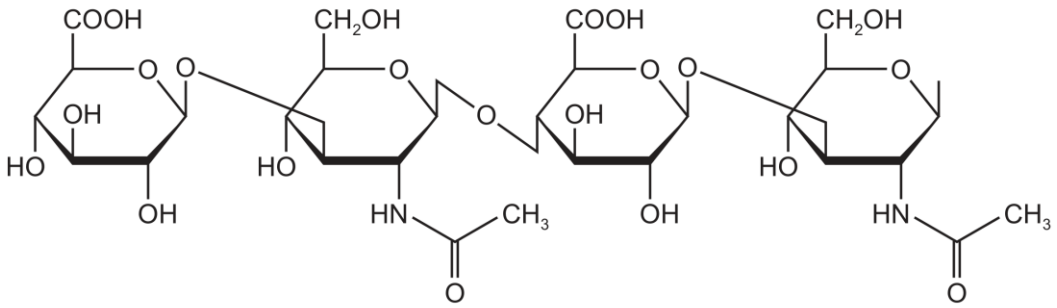


3

In which carbohydrates do these three hexoses occur?

| | sucrose | cellulose | glycogen |
|---|---|---|---|
| **A** | 1 | 2 | 3 |
| **B** | 1 | 3 | 2 |
| **C** | 2 | 3 | 1 |
| **D** | 3 | 2 | 1 |

**44** The diagram shows part of the chemical structure of a naturally occurring polysaccharide.



What types of glycosidic bonds are present?

**A** α-1,3 and α-1,4

**B** α-1,4 and α-1,6

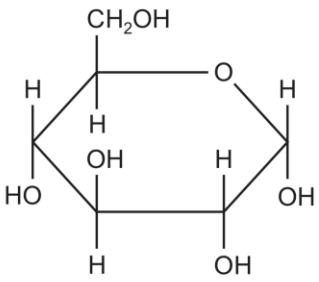
**C** β-1,3 and β-1,4

**D** β-1,4 and β-1,6

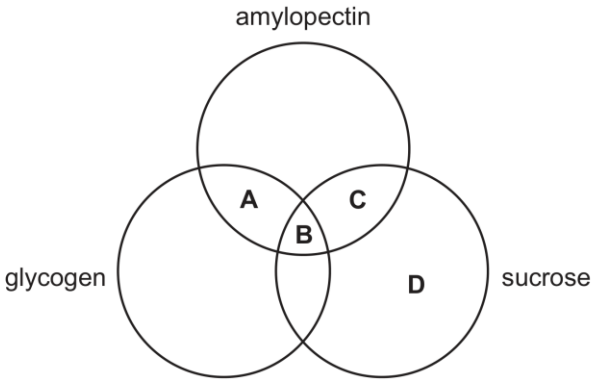
**45** What is the maximum number of water molecules produced when a triglyceride is synthesised?

**A** 3 **B** 2 **C** 1 **D** 0

**46** The diagram shows the structure of a monomer.




Which molecules contain this monomer?



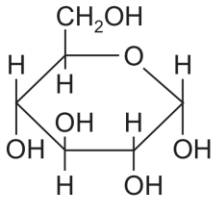
**47** Which row correctly matches the function with the structural features of cellulose, collagen, glycogen or triglyceride?

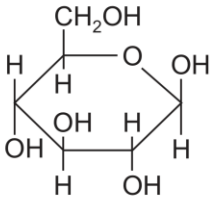
| | molecule | function | structure | | |
|---|---|---|---|---|---|
| | | | fibrous | molecules held together by hydrogen bonds | branched chains |
| **A** | cellulose<br>triglyceride | support<br>energy source | ✓<br>✗ | ✓<br>✗ | ✗<br>✗ |
| **B** | collagen<br>cellulose | strengthening<br>support | ✓<br>✓ | ✓<br>✗ | ✗<br>✓ |
| **C** | collagen<br>glycogen | strengthening<br>storage | ✓<br>✗ | ✓<br>✗ | ✓<br>✓ |
| **D** | glycogen<br>triglyceride | storage<br>energy source | ✗<br>✗ | ✓<br>✓ | ✓<br>✗ |

key ✓ = correct ✗ = not correct

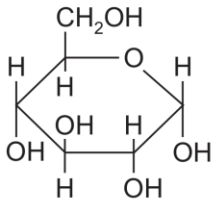
**48** Which pair of monosaccharides forms sucrose?

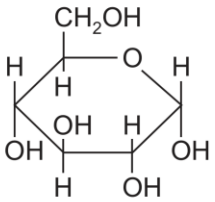
**A**



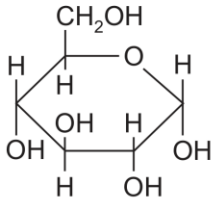



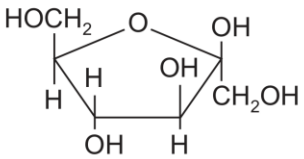

**B**



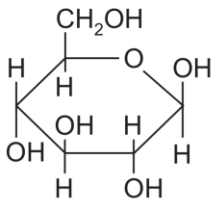



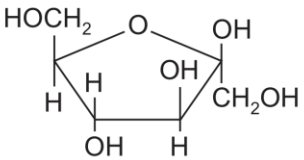

**C**



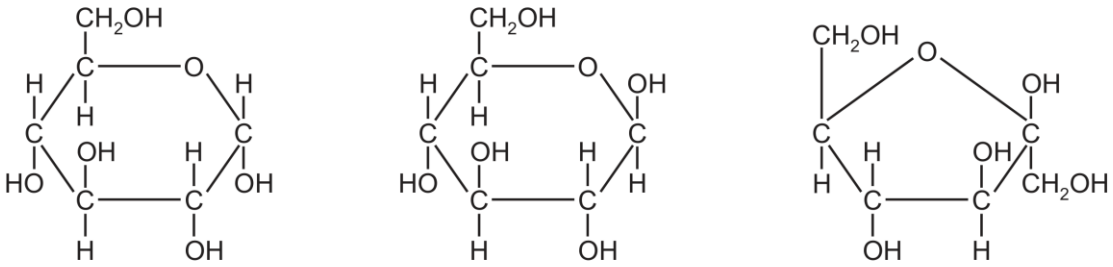




**D**



**49** The diagram shows three hexose sugars.



1 2 3

Which row correctly shows examples of carbohydrates in which these three hexose sugars occur?

| | sucrose | cellulose | starch |
|---|---|---|---|
| **A** | 1 | 2 | 3 |
| **B** | 1 | 3 | 2 |
| **C** | 2 | 3 | 1 |
| **D** | 3 | 2 | 1 |

**50** What can occur during condensation of carbohydrates?

**A** a disaccharide is produced from monosaccharides

**B** glycosidic bonds are broken

**C** molecules of water are used up

**D** monosaccharides are produced

**51** What is true about triglycerides?

| | hydrophobic | insoluble in alcohol |
|---|---|---|
| **A** | ✓ | ✓ |
| **B** | ✓ | ✗ |
| **C** | ✗ | ✓ |
| **D** | ✗ | ✗ |

key
✓ = correct
✗ = not correct

**52** Which of the statements about polysaccharides can be used to describe amylose and cellulose?

1 contains 1,4 glycosidic bonds

2 contains 1,6 glycosidic bonds

3 polymer of glucose

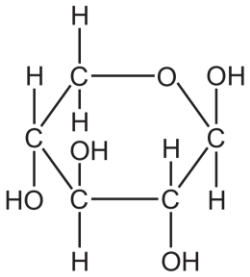
**A** 1 and 2

**B** 1 and 3

**C** 1 only

**D** 2 and 3

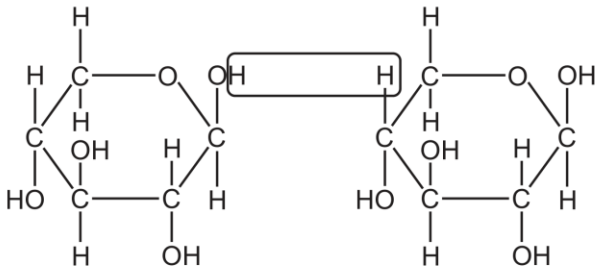
**53** The diagram shows the monosaccharide xylose.



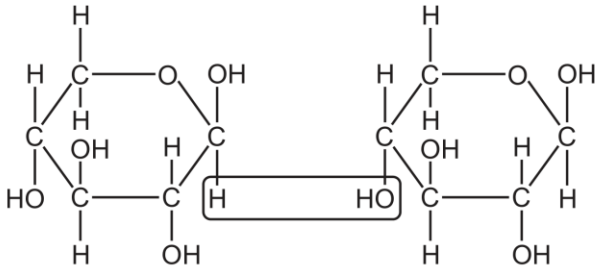
Many xylose monomers can be joined by glycosidic bonds to form a polysaccharide which is found in plant cell walls.

Which diagram shows the formation of a glycosidic bond between two xylose monomers?

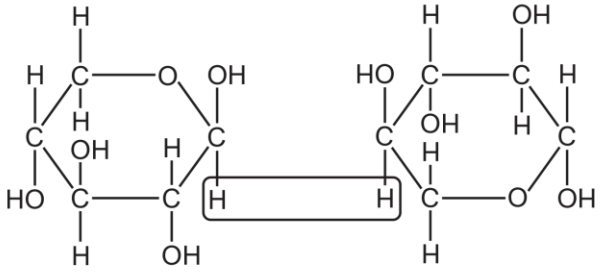
**A**



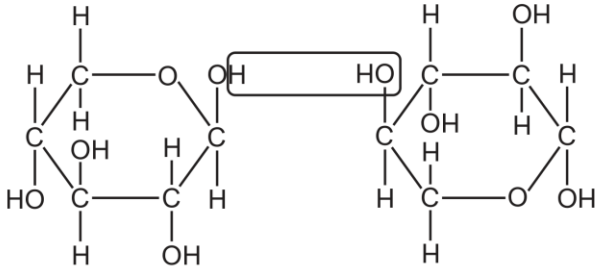
**B**



**C**



**D**



**54** Which molecules are monomers?

1 ribose

2 glucose

3 deoxyribose

4 sucrose

**A** 1, 2 and 3 **B** 1, 2 and 4 **C** 1, 3 and 4 **D** 2, 3 and 4

**55** Some features of triglycerides are listed.

1 can be liquid or solid at room temperature

2 contains a high proportion of carbon–hydrogen bonds

3 insoluble in water

4 less dense than water

Which of these features make triglycerides suitable energy stores?

**A** 1 and 2 **B** 1 and 4 **C** 2, 3 and 4 **D** 2 and 3 only

**56** Some foods contain hydrogenated vegetable oils. These are unsaturated fats that have been converted to saturated fats.

Which property of the fats will have changed?

**A** Their hydrocarbon chains will fit together more closely.

**B** Their solubility in water will increase.

**C** They will have more double bonds in their molecules.

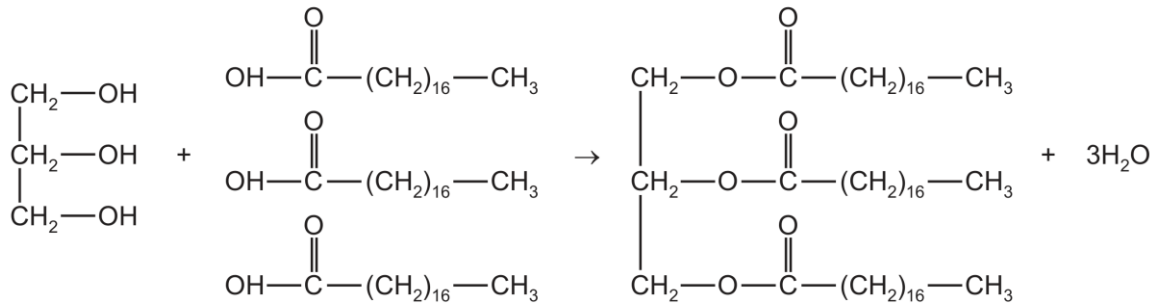
**D** They will remain liquid at room temperature.

**57** Which rows show the chemical groups present in the biological molecules listed?

| | biological molecule | presence of carboxyl (COOH) groups | presence of two or more hydroxyl (OH) groups |
|---|---|---|---|
| 1 | amino acid | yes | no |
| 2 | β-glucose | no | yes |
| 3 | glycerol | no | no |
| 4 | fatty acid | yes | no |

**A** 1, 2 and 3 **B** 1, 2 and 4 **C** 1, 3 and 4 **D** 2, 3 and 4

**58** The diagram shows the formation of a biological macromolecule.




Which type of bonds are formed in the macromolecule product?

**A** ester bonds

**B** glycosidic bonds

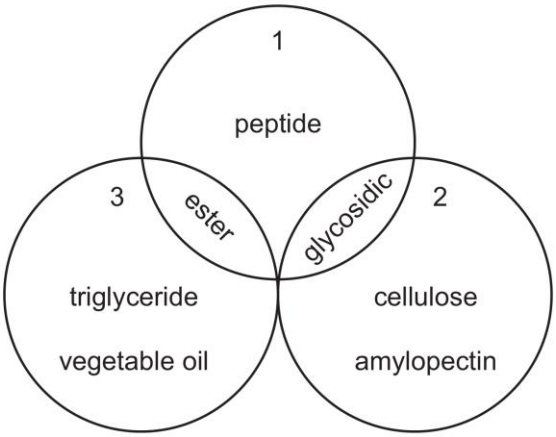
**C** hydrogen bonds

**D** peptide bonds

**59** What is the general formula for amylose?

**A** $(C_5H_{10}O_5)_n$ **B** $(C_5H_{10}O_6)_n$ **C** $(C_6H_{10}O_5)_n$ **D** $(C_6H_{12}O_6)_n$

**60** The diagram shows relationships between some important molecules and bonds.




What is represented by circles numbered 1, 2 and 3?

| | 1 | 2 | 3 |
|---|---|---|---|
| **A** | bonds formed by condensation | carbohydrates | lipids |
| **B** | bonds formed by condensation | lipids | carbohydrates |
| **C** | bonds formed by hydrolysis | carbohydrates | lipids |
| **D** | bonds formed by hydrolysis | lipids | carbohydrates |

**61** In unsaturated lipid molecules, where are double bonds located?

**A** between fatty acids and glycerol

**B** within fatty acids and within glycerol

**C** within fatty acids only

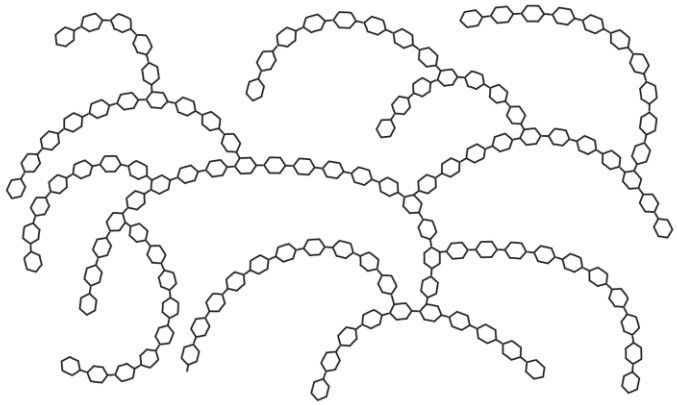
**D** within glycerol only

**62** Phospholipids and triglycerides are important biological molecules.

Which properties are correct for these molecules?

| | non-polar | partially hydrophobic |
|---|---|---|
| **A** | phospholipid | phospholipid |
| **B** | phospholipid | triglyceride |
| **C** | triglyceride | phospholipid |
| **D** | triglyceride | triglyceride |

**63** The diagram shows part of a carbohydrate molecule formed by glucose.



What is the name of the molecule?

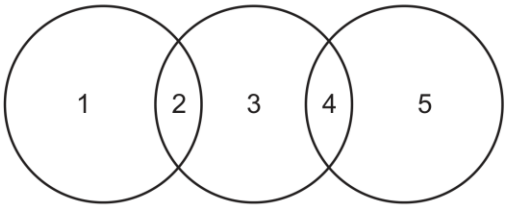
**A** amylose

**B** cellulose

**C** glycogen

**D** starch

**64** The diagram shows the relationship between some biological molecules.

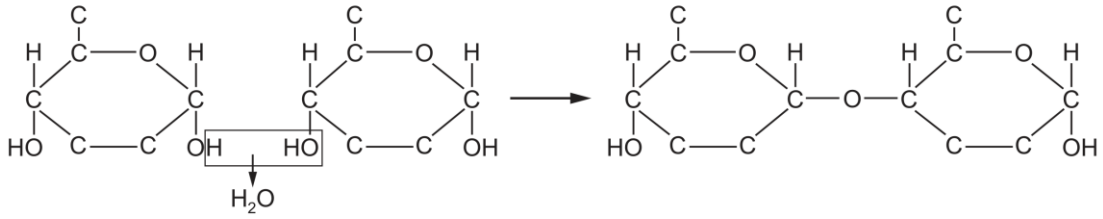



Which row is correct?

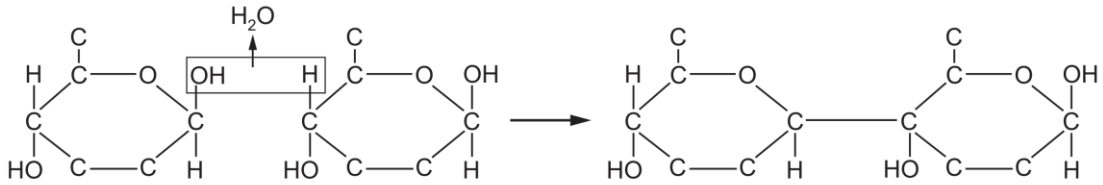
| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| **A** | α-glucose | carbohydrate | sucrose | monomer | fructose |
| **B** | cellulose | polymer | starch | carbohydrate | amylase |
| **C** | fructose | reducing sugar | β-glucose | monomer | amino acid |
| **D** | haemoglobin | protein | amylose | polymer | cellulose |

**65** Which diagram shows the reaction that occurs to join two of the monomers that form cellulose?

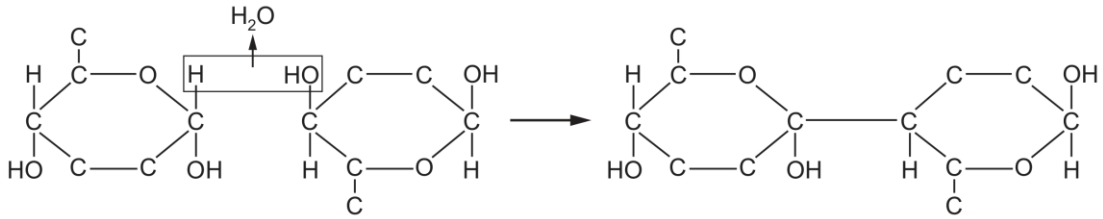
**A**



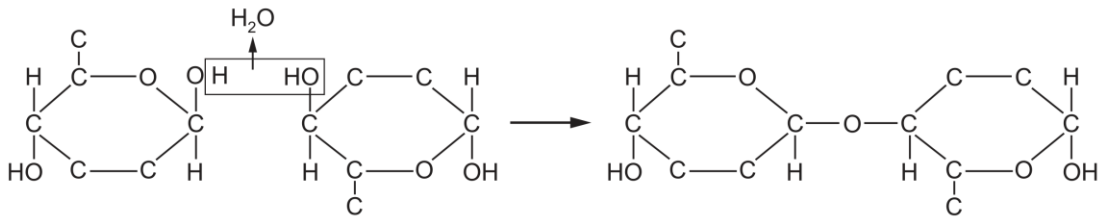

**B**




**C**




**D**



**66** Which molecules contain C=O bonds?

1 amino acids

2 fatty acids

3 glycerol

**A** 1, 2 and 3 **B** 1 and 2 only **C** 1 and 3 only **D** 2 and 3 only

**67** Which pair of statements are correct?

**A** Carbon and oxygen occur in a ratio of 2 : 1 in carbohydrates.
Triglycerides are soluble in water.

**B** Glycolipids are found in all cell surface membranes.
Carbohydrates are stored as starch in plants.

**C** Phospholipids all have two saturated hydrocarbon chains.
Polysaccharides are polymers.

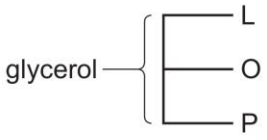
**D** Water is released during the formation of a glycosidic bond.
Phospholipids all have three ester bonds.

**68** What is the general formula for cellulose?

**A** $(C_5H_{10}O_5)_n$ **B** $(C_5H_{10}O_6)_n$ **C** $(C_6H_{10}O_5)_n$ **D** $(C_6H_{12}O_6)_n$

**69** A triglyceride consists of glycerol and three different fatty acids, linoleic acid (L), oleic acid (O) and palmitic acid (P).

The diagram shows one possible arrangement of the fatty acids L, O and P in the molecule.




What is the total number of different arrangements of the fatty acids in this triglyceride?

**A** 3 **B** 4 **C** 5 **D** 9

**70** Which row correctly identifies three polysaccharides

| | α-glucose straight chain | α-glucose branching chain | β-glucose straight chain |
|---|---|---|---|
| **A** | amylose | amylopectin | cellulose |
| **B** | amylose | glycogen | amylopectin |
| **C** | glycogen | amylose | amylopectin |
| **D** | glycogen | amylose | cellulose |

**71** Which row describes a triglyceride?

| | hydrophobic | insoluble in alcohol |
|---|---|---|
| **A** | ✓ | ✓ |
| **B** | ✓ | ✗ |
| **C** | ✗ | ✓ |
| **D** | ✗ | ✗ |

key

✓ = correct

✗ = not correct