

Biological molecules

Question Paper 1

Level	IGCSE
Subject	Biology (0610/0970)
Exam Board	Cambridge International Examinations (CIE)
Topic	Biological molecules
Sub-Topic	Biological molecules
Booklet	Question Paper 1

Time Allowed: 25 minutes

Score: /21

Percentage: /100

Grade Boundaries:

9	8	7	6	5	4	3	2	1
>85%	75%	68%	60%	53%	48%	40%	33%	<25%

1. Small molecules are used as the basic units in the synthesis of large food molecules.

Which statement is correct?

- A** Amino acids are basic units of carbohydrates.
- B** Fatty acids are basic units of glycogen.
- C** Glycerol is a basic unit of oils.
- D** Simple sugar is a basic unit of protein.

2. When a substance is added to meat, amino acids are produced.

What is this substance?

- A** a hormone
- B** an enzyme
- C** an oil
- D** water

3. When bases pair up in the formation of DNA, what is one of the pairings?

- A** G with A
- B** G with C
- C** G with G
- D** G with T

4. The structures of antibodies, DNA molecules and enzymes are specific to their actions.
Which feature of each molecule makes it specific?

	antibody	DNA	enzyme
A	active site	binding site	base order
B	base order	active site	binding site
C	base order	binding site	active site
D	binding site	base order	active site

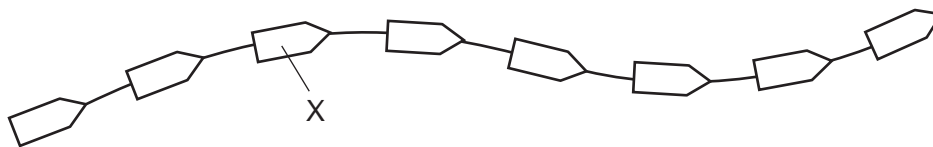
5. The diagram shows the order of bases along part of one strand of DNA.

A—C—T—T—A—G—A—T

What is the order of bases on the corresponding part of the other strand?

- A** A—C—T—T—A—G—A—T
- B** C—A—G—G—C—T—C—G
- C** T—A—G—A—T—T—C—A
- D** T—G—A—A—T—C—T—A

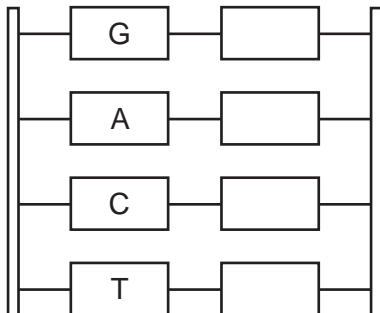
6. The diagram shows part of a protein molecule.



What does X represent?

- A** amino acid
- B** fatty acid
- C** glycerol
- D** sugar

7. The diagram shows a section of DNA, with four bases identified on one strand.



Which sequence of bases would be on the other strand, starting from the top?

- A** AGTC **B** CTGA **C** GACT **D** TCAG

8. Four different foods were tested for their composition.

The results are shown in the table.

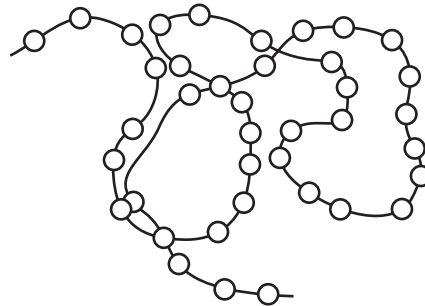
Which food contains protein but **not** reducing sugar or starch?

	Benedict's test	iodine test	biuret test
A	blue	black	purple
B	blue	brown	purple
C	brick red	black	blue
D	brick red	brown	blue

9. What are the smaller basic units of starch and glycogen molecules?

	starch	glycogen
A	amino acids	fatty acids and glycerol
B	amino acids	simple sugars
C	simple sugars	fatty acids and glycerol
D	simple sugars	simple sugars

10. The diagram represents a protein molecule.



What do the small circles represent?

- A** amino acids
- B** fatty acids
- C** glycerol
- D** simple sugars

11. Which row shows the elements and basic units that are used in the construction of large food molecules?

	food molecules	elements	basic units
A	fats	carbon, hydrogen, oxygen, nitrogen	glucose
B	fats	carbon, hydrogen, oxygen, nitrogen	glycerol
C	starch	carbon, hydrogen, oxygen	glucose
D	starch	carbon, hydrogen, oxygen	glycerol

12. Which nutrient produces a purple colour when mixed with biuret solution?

- A** fat
- B** protein
- C** reducing sugar
- D** starch

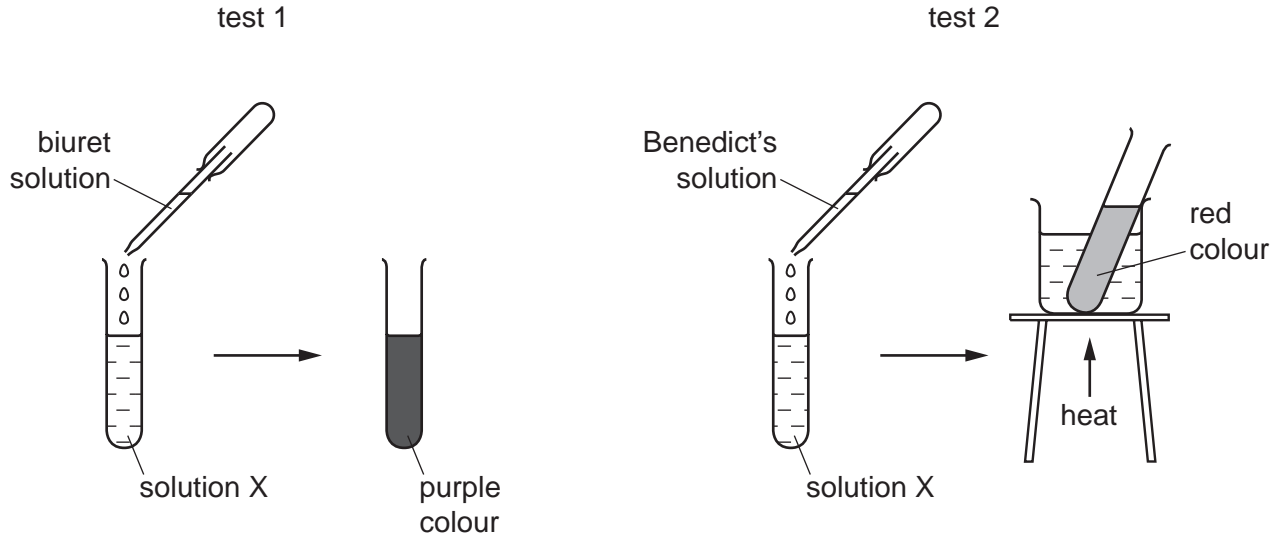
13. Which simple molecules are the basic units of protein?

- A** amino acids
- B** fatty acids
- C** sugars
- D** vitamins

14. Which food-testing reagent shows a positive result when it turns from blue to purple?

- A** Benedict's solution
- B** biuret reagent
- C** ethanol
- D** iodine solution

15. The diagram shows two food tests carried out on solution X.



Which nutrients are present in solution X?

- A** protein and starch
- B** protein and sugar
- C** starch and fat
- D** starch and sugar

16. The data show the concentrations of sugar and starch in an onion.

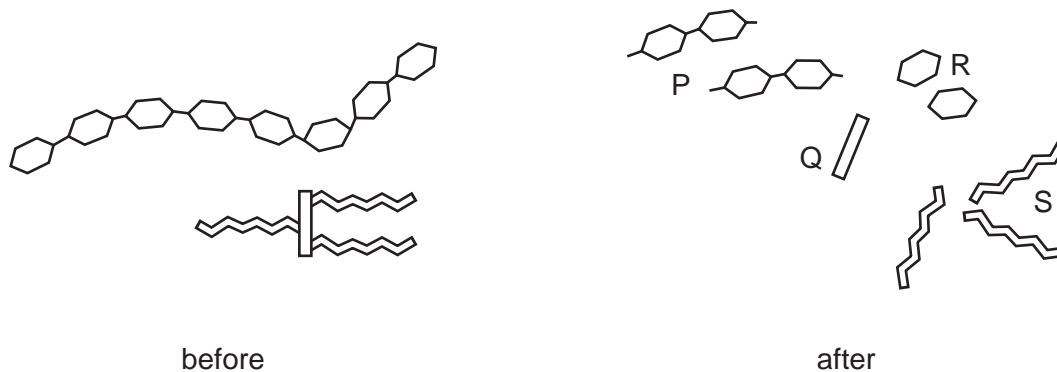
total sugar including reducing sugar /g per 100g	starch /g per 100g
3.7	0

The onion is tested with Benedict's solution and iodine solution.

Which set of results is correct?

	Benedict's solution	iodine solution
A	blue	blue-black
B	blue	brown
C	brick red	blue-black
D	brick red	brown

17. The diagram shows two food molecules before and after they have been digested by enzymes.



What identifies the products of fat digestion?

- A** P and R **B** P and S **C** Q and R **D** Q and S

18. Four foods were tested for each of the following nutrients:

fat (using ethanol);

protein (using the biuret test);

reducing sugar (using Benedict's solution),

Which food contains protein and fat?

	colour of result of food test		
	purple / lilac	brick-red / orange	milky-white
A	✓	x	✓
B	✓	x	x
C	x	✓	✓
D	x	✓	x

key

✓ = nutrient present

x = nutrient absent

19. A human cell contains a length of DNA that carries the code for making which substance?

- A fat
- B glycogen
- C lipase
- D starch

20 An amino acid is deaminated. This is the removal of

- A the carbon-containing part.
- B the nitrogen-containing part.
- C the oxygen-containing part.
- D the sulfur-containing part.

21 Which of these is digested by protease?

A ■

B ●

C ■—■—■—■

D ●—●—●—●

key

■ amino acid

● glucose

— chemical bond