

Adabistan-e-Soophia
School for Boys & Girls

Adabistan-e-Soophia

General Certificate of Education Ordinary Level 3 (Test 1)

CANDIDATE
NAME

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CENTER
NUMBER

CANDIDATE
NUMBER

Biology

5090/01

Paper - I

Session

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Time

3	0	m	i	n	u	t	e	s
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Marks

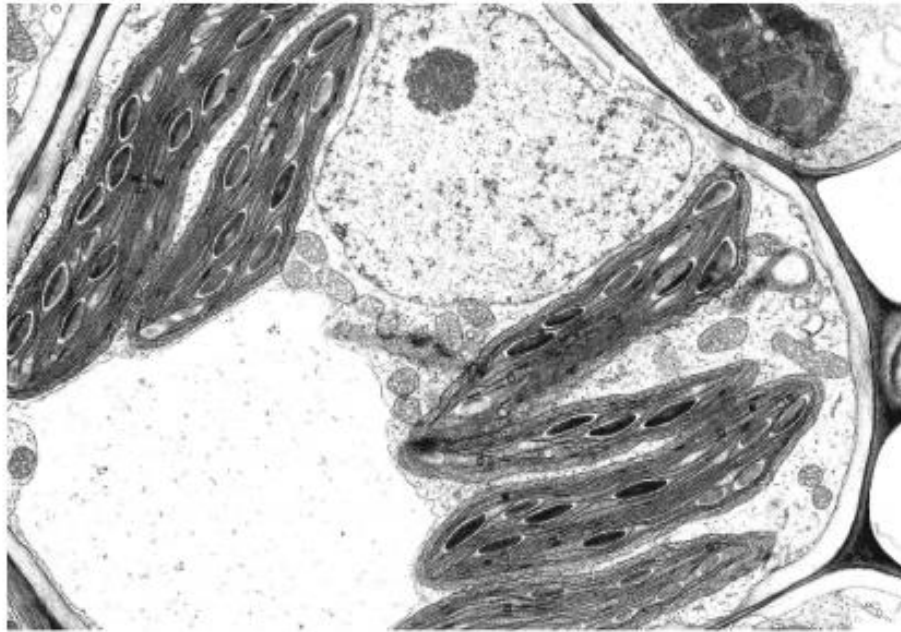
2	0	
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Additional Materials: *Answer Booklet/Paper*

READ THESE INSTRUCTIONS FIRST

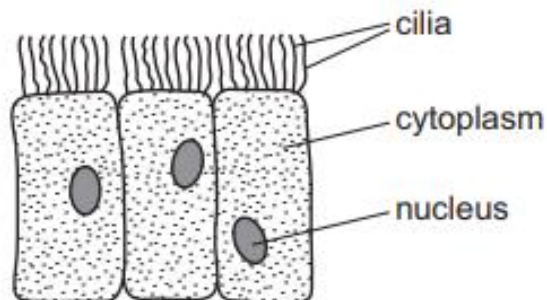
1. Write in soft pencil.
2. Do not use staples, paper clips, highlighters, glue or correction fluid.
3. Write your name, Centre number and candidate number on the Answer Sheet in the spaces provided unless this has been done for you.
4. There are forty questions on this paper. Answer all questions.
For each question there are four possible answers A, B, C and D.
5. Choose the one you consider correct and record your choice in soft pencil on the separate Answer Sheet.
6. Read the instructions on the Answer Sheet very carefully.
7. Each correct answer will score one mark. A mark will not be deducted for a wrong answer. Any rough working should be done in this booklet.

- 1 The magnification of the photomicrograph is $\times 4000$.



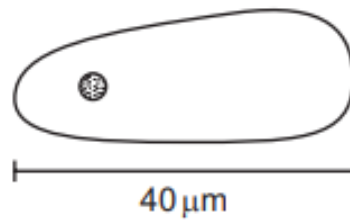
What is the actual size of the nucleolus?

- A $1\ \mu\text{m}$ B $2\ \mu\text{m}$ C $5\ \mu\text{m}$ D $20\ \mu\text{m}$
- 2 The diagram shows some cells.



- Where are these cells found?
- A alimentary canal
B blood
C bronchial wall
D plant roots
- 3 Which structure is at a different level of organisation from the other three?
- A kidney
B liver
C neurone
D testis

- 4 The diagram shows a pollen grain of a rice plant. The size of the image is 40 mm



The actual length of the pollen grain is $40\ \mu\text{m}$.

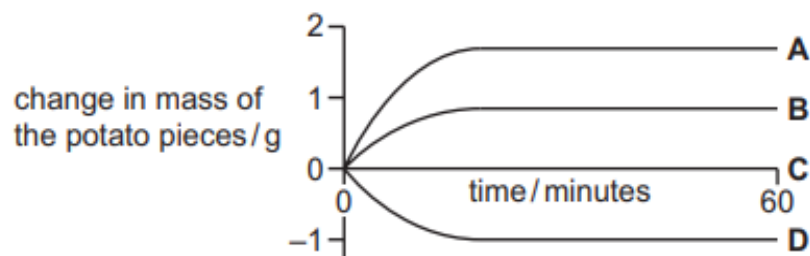
By how many times has the diagram been magnified?

- A** $\times 1$ **B** $\times 10$ **C** $\times 100$ **D** $\times 1000$
- 5 Three equally sized pieces of potato were put into different concentrations of sucrose solution. One piece of potato was put into distilled water.

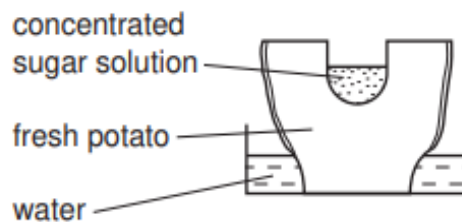
The concentrations of sucrose solution were $0.2\ \text{g dm}^{-3}$, $0.4\ \text{g dm}^{-3}$ and $0.6\ \text{g dm}^{-3}$.

The graph shows the change in mass of the potato pieces over a period of 60 minutes.

Which piece of potato was put into distilled water?



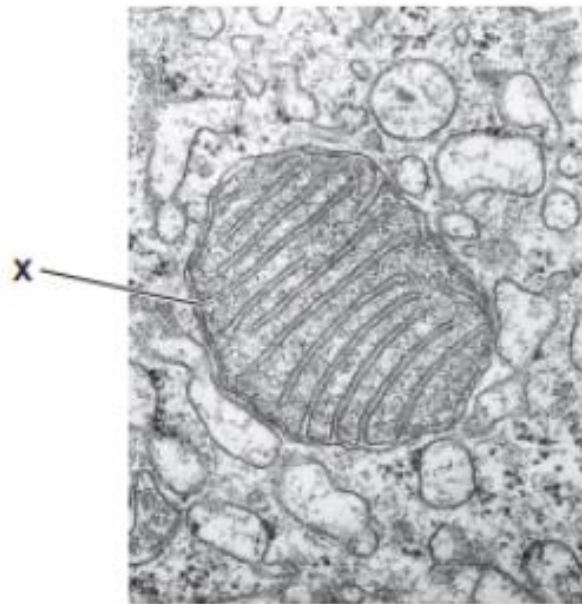
- 6 The diagram shows an experiment using a potato.



Which shows the result of the experiment after 24 hours?



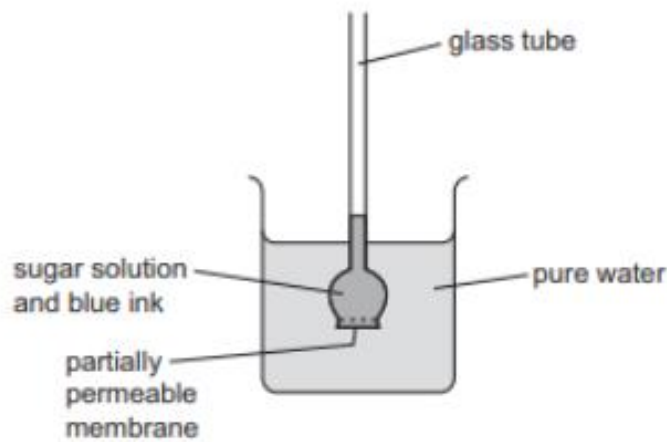
7 The photomicrograph shows part of an animal cell.



What is the structure labelled X?

- A chloroplast
- B mitochondrion
- C ribosome
- D vacuole

8 The apparatus shown was set up.



Some hours later, the water in the beaker had turned blue, and the liquid in the glass tube had moved upwards.

Which processes caused these changes?

	water turned blue	liquid in glass tube moved upwards
A	osmosis	diffusion
B	active transport	osmosis
C	diffusion	active transport
D	diffusion	osmosis

9 A protease is added to a suspension of egg protein in a test-tube and kept at 37°C.

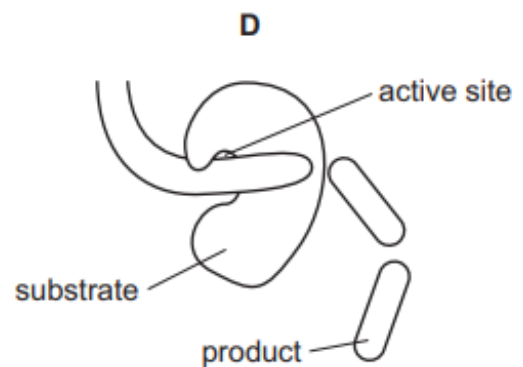
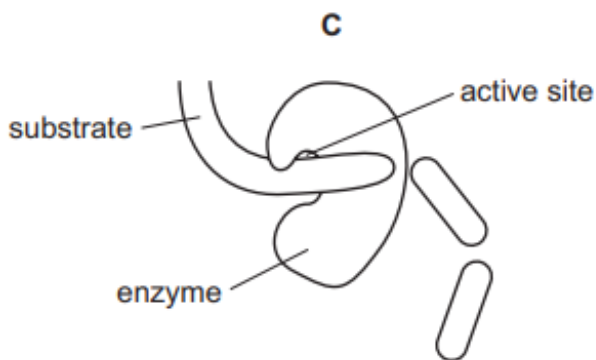
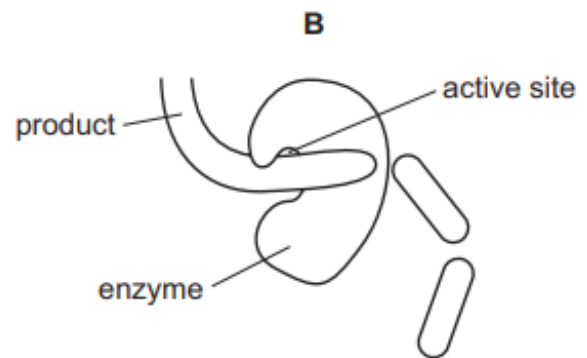
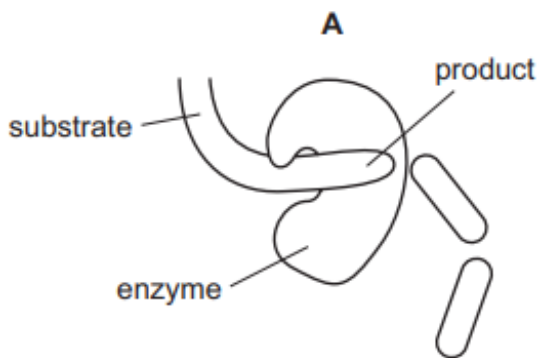
After 8 minutes, the protein changes from cloudy to transparent.

Which product, or products, will now be present in the test-tube?

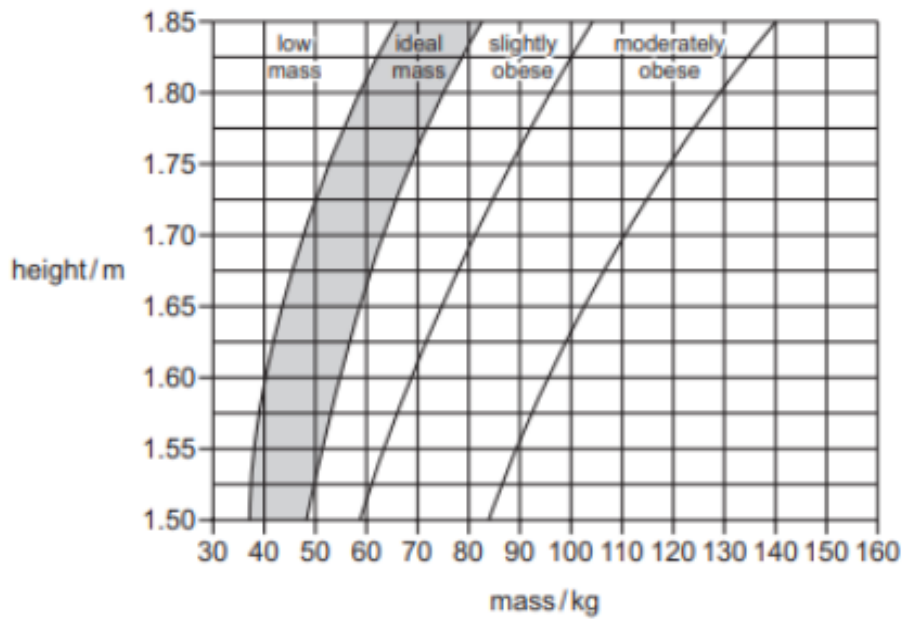
- A amino acids
- B a simple sugar
- C fatty acids and glycerol
- D water

10 The diagrams show a protease enzyme catalysing the breaking of part of a protein molecule into smaller pieces.

Which diagram has three correct labels?



11 The chart is used to find a person's recommended mass.



For the data provided about body mass and height, which person would benefit most from the introduction of a calorie-controlled diet and regular exercise?

	body mass /kg	height /m
A	40	1.55
B	50	1.75
C	70	1.80
D	90	1.75

12 An enzyme in potato cells causes oxygen to be produced from hydrogen peroxide. Cubes of potato were incubated with hydrogen peroxide at different temperatures. The numbers of bubbles of oxygen released per minute were counted at each temperature. The table shows the results.

temperature /°C	15	25	35	45	55
number of bubbles /bubbles per minute	96	98	82	36	1

The results suggest the optimum temperature for the enzyme is between which two values?

- A** 15 °C and 35 °C
- B** 35 °C and 45 °C
- C** 35 °C and 55 °C
- D** 45 °C and 55 °C

13 Which condition can sometimes be prevented by eating plenty of fresh fruit and vegetables?

- A bleeding gums
- B brittle bones
- C diabetes
- D soft bones

14 The diagram shows a human tooth.



Which statement best describes the function of this tooth?

- A It bites into food.
- B It cuts food.
- C It grinds food.
- D It tears food.

15 Statements 1–4 describe stages in the development of cholera.

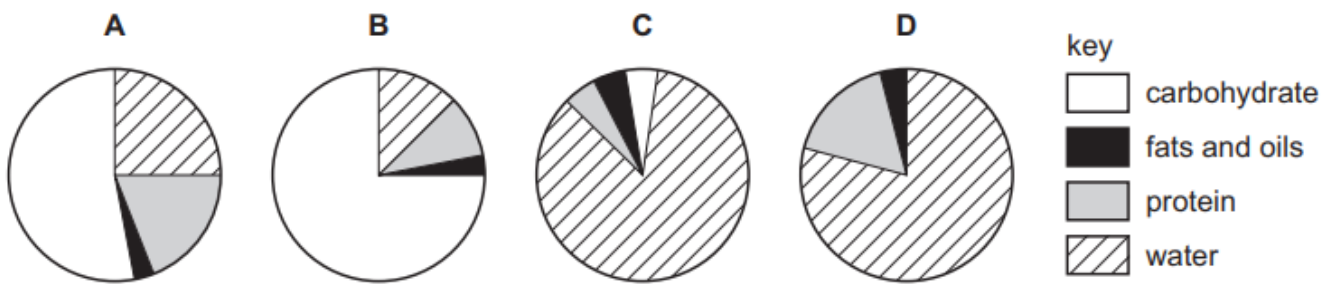
- 1 Chloride ions are secreted in the gut.
- 2 Osmosis causes water to move into the gut.
- 3 The infected person becomes dehydrated.
- 4 Toxins are produced by the pathogenic bacteria.

What is the correct sequence of the four stages?

- A 1 → 2 → 3 → 4
- B 1 → 4 → 3 → 2
- C 4 → 1 → 2 → 3
- D 4 → 1 → 3 → 2

16 12 The pie charts show the composition of 100g of four different foods.

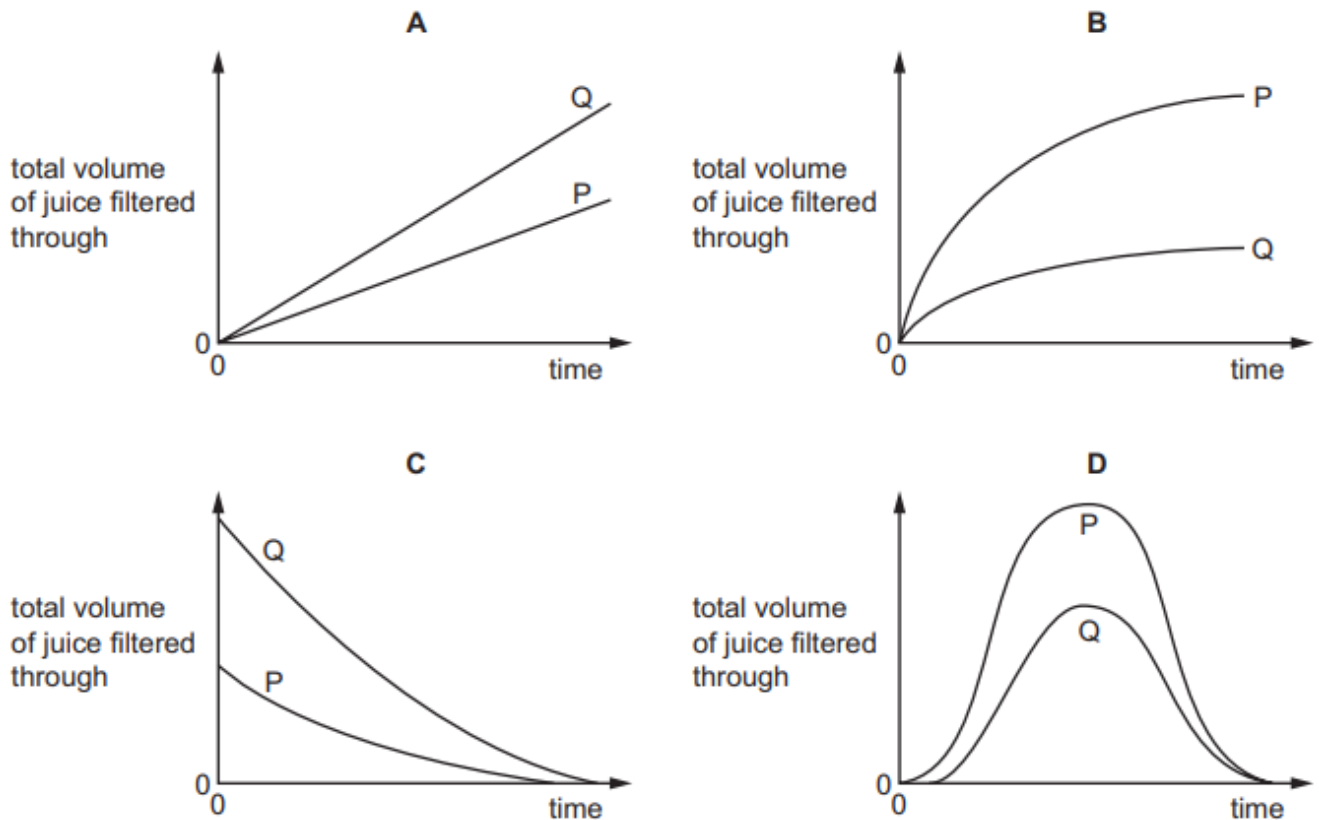
Which food provides the most energy?



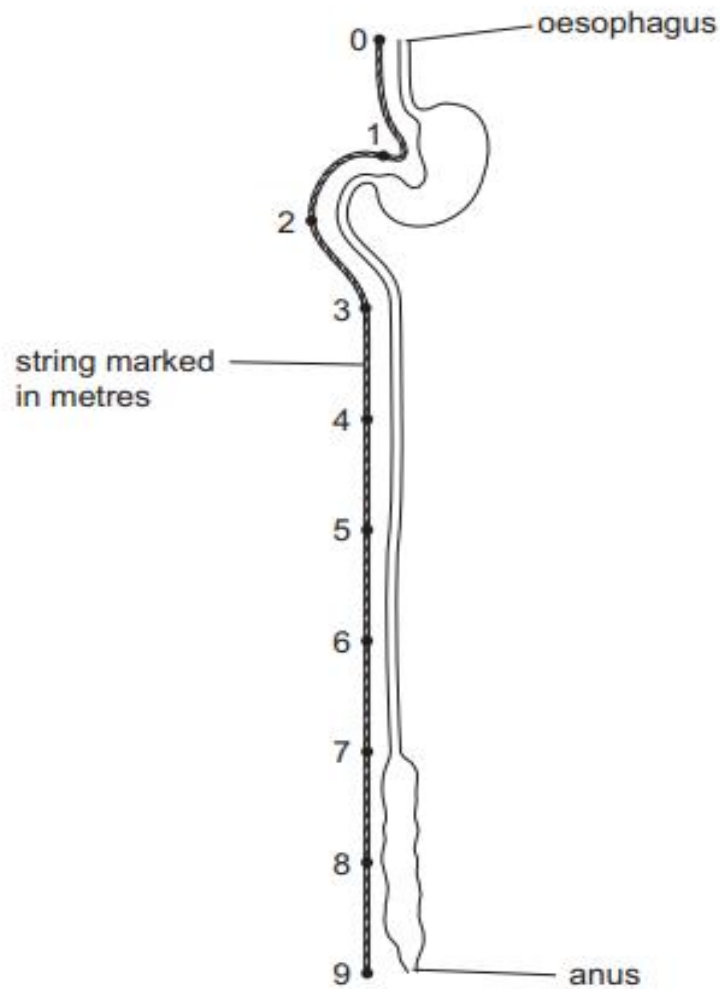
17 A student places two samples of crushed apple into two beakers, P and Q. The samples are of equal size. She adds 5 cm^3 of pectinase solution to beaker P and 5 cm^3 of water to beaker Q.

After five minutes, she places the samples of crushed apple into two different filter funnels, and measures the volume of juice filtering through from each sample over a period of 10 minutes.

Which graph shows her results?



18 The diagram shows the human alimentary canal, with a string marked in metres beside it.



How long is the small intestine?

- A** 2m **B** 6m **C** 8m **D** 9m

19 What are the levels of organisation of

- the wall of a villus,
- the small intestine?

	wall of a villus	small intestine
A	cell	organ
B	cell	organ system
C	tissue	organ
D	tissue	organ system

20 The food label is from a packet of cereal.

The label can help someone who is concerned about their diet.

Nutrition	
Typical values	100 g contains
Energy	985 kJ 235 kcal
Fat	1.5 g
of which saturates	0.3 g
Carbohydrate	45.5 g
of which sugars	3.8 g
Fibre	2.8 g
Protein	7.7 g
Salt	0.5 g

A person eats 45 g of cereal.

One of the food types listed in the label can help prevent constipation.

How many grams of this food type does the person eat?

- A** 1.3 g **B** 2.8 g **C** 3.5 g **D** 7.7 g