

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Centre Number

Candidate Number

Pearson Edexcel International GCSE (9–1)

Sample assessment material for first teaching 2024

Time 1 hour 10 minutes

Paper
reference

4WSD1/1B

Biology

UNIT 1

Science (Double Award) (Modular)

You must have:

Ruler, calculator

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*

Information

- The total mark for this unit is 60.
- The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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Answer ALL questions.

Some questions must be answered with a cross . If you change your mind about an answer, put a line through the box and then mark your new answer with a cross .

- 1** Biologists classify organisms into different groups. One group of organisms is fungi.

Complete the passage about fungi by writing a suitable word or words in each blank space.

(4)

Fungi do not carry out photosynthesis. Their body is usually organised into a mycelium made from thread-like structures called

Fungal cell walls are made of

Fungi feed by extracellular secretion of onto food

material and absorption of the organic products. This is known

as nutrition.

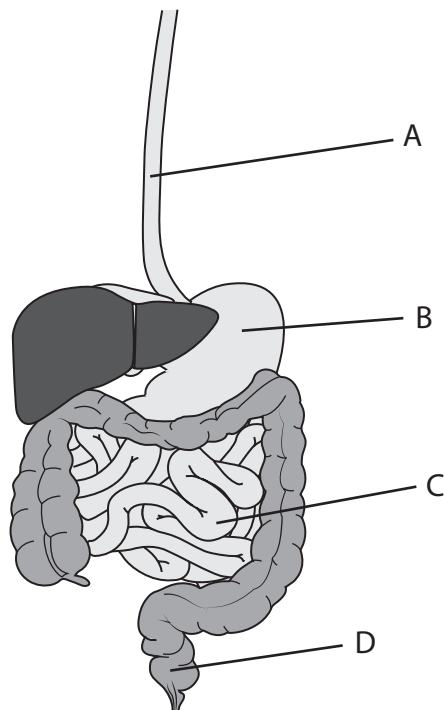
(Total for Question 1 = 4 marks)

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2 (a) The diagram shows part of the human digestive system.



(i) In which of these parts is hydrochloric acid produced?

(1)

- A
- B
- C
- D

(ii) In which of these parts are faeces stored?

(1)

- A
- B
- C
- D

(iii) Which of these parts is the small intestine?

(1)

- A
- B
- C
- D

(b) The liver produces bile.

Explain the role of bile in digestion.

(3)

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(Total for Question 2 = 6 marks)

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3 (a) All living organisms share characteristics.

(i) State **two** characteristics that all living organisms share.

(2)

1

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2

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(ii) Some organisms are pathogens.

Which of these organisms can cause a bacterial disease in humans?

(1)

A *Amoeba*

B *Lactobacillus bulgaricus*

C *Mucor*

D *Pneumococcus*

(b) Give **three** differences between the structure of viruses and bacteria.

(3)

1

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2

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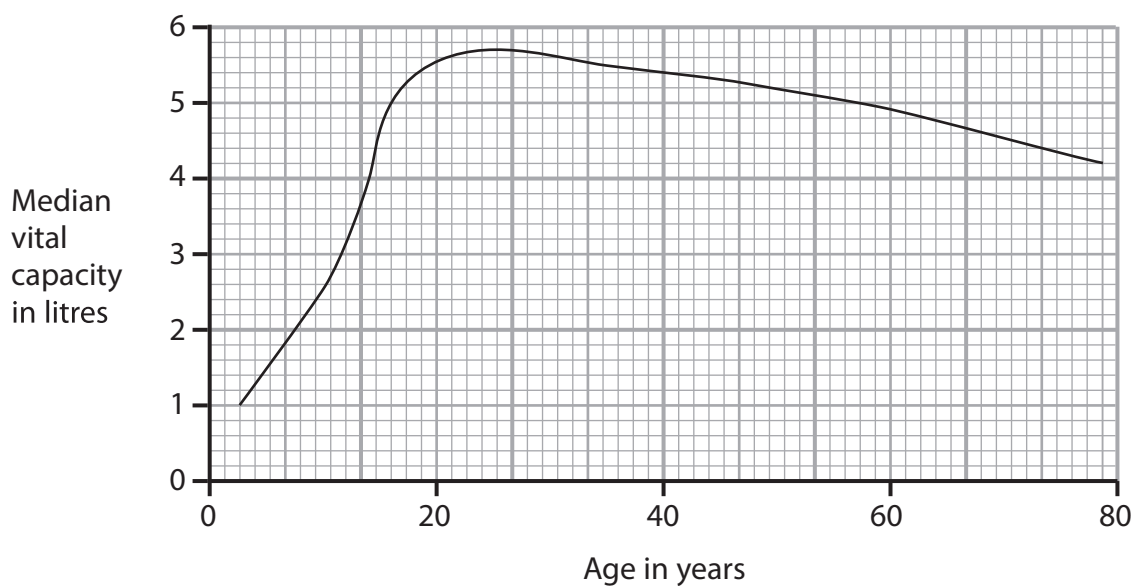
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(Total for Question 3 = 6 marks)

- 4 (a) Vital capacity is the maximum volume of air that a person can force out of their lungs in one breath.

The graph shows the relationship between vital capacity and age for a large number of people.



The vital capacity plotted is the median value for each age.

- (i) Determine the percentage change in median vital capacity from age 20 to age 80.

(2)

percentage change = %

- (ii) Explain why the median is used rather than the mean.

(2)

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(iii) Explain why vital capacity changes with age.

(2)

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(iv) Age is not the only variable that can change vital capacity.

Give **two** other variables that can affect a person's vital capacity.

(2)

1

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(b) Describe a method you could use to demonstrate the effect of exercise on breathing rate in students.

(3)

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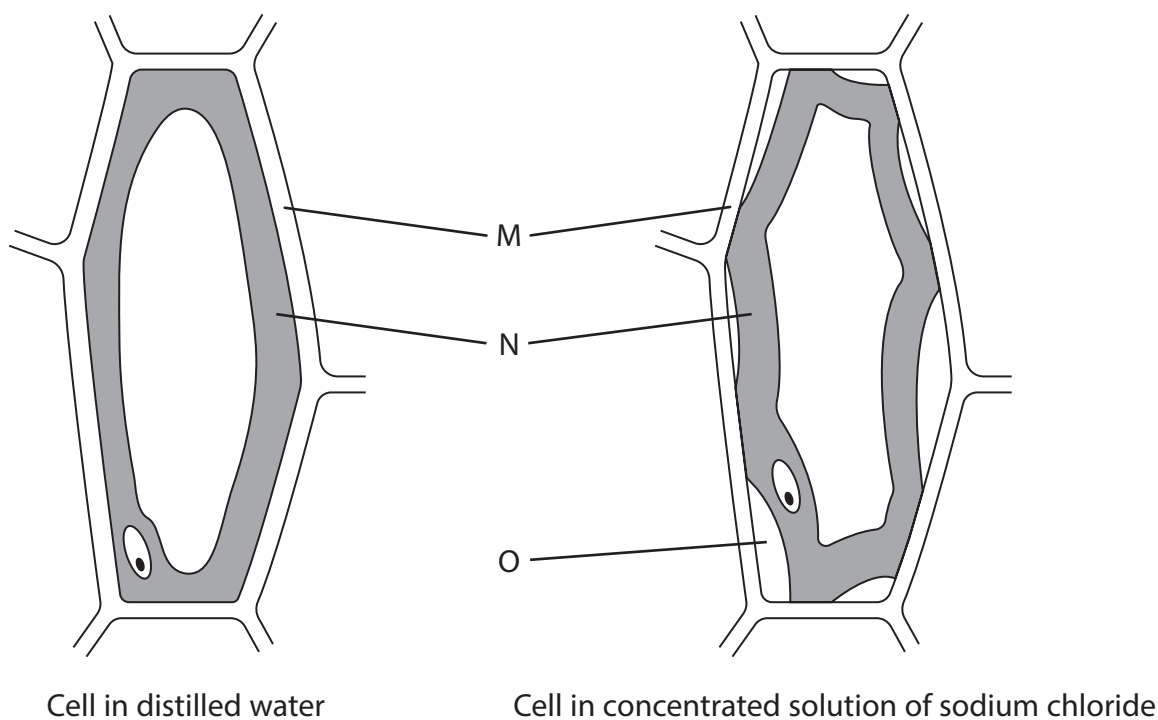
(Total for Question 4 = 11 marks)

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- 5 The diagram shows a plant cell in distilled water and a plant cell in a concentrated solution of sodium chloride.



- (a) (i) Which structure is labelled M?

(1)

- A cell membrane
- B cell wall
- C nucleus
- D vacuole

- (ii) Which structure is labelled N?

(1)

- A cell membrane
- B cell wall
- C cytoplasm
- D vacuole

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(b) (i) Give the name of the liquid found in the gap labelled O in the cell in the concentrated solution of sodium chloride.

(1)

(ii) Explain the differences in the appearance of the cell in distilled water and the cell in the concentrated solution of sodium chloride.

(4)

(c) Describe an experiment you could do to show how different concentrations of sodium chloride solution affect the appearance of plant cells.

(4)

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(Total for Question 5 = 11 marks)

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6 An electronic cigarette (e-cigarette) has been developed.

Instead of burning tobacco, e-cigarettes heat a liquid that contains nicotine and flavourings to produce a vapour that is inhaled.

Scientists carried out an investigation to see how the smoking habits of people changed between 2011 and 2016.

Each year they determined the percentage of people who used e-cigarettes and the percentage of people who smoked normal cigarettes during the year.

The results are shown in the table.

Year	Percentage of people	
	using e-cigarettes	smoking normal cigarettes
2011	1.5	15.8
2012	2.8	14.0
2013	4.5	12.7
2014	13.4	9.5
2015	16.0	9.3
2016	11.3	8.0

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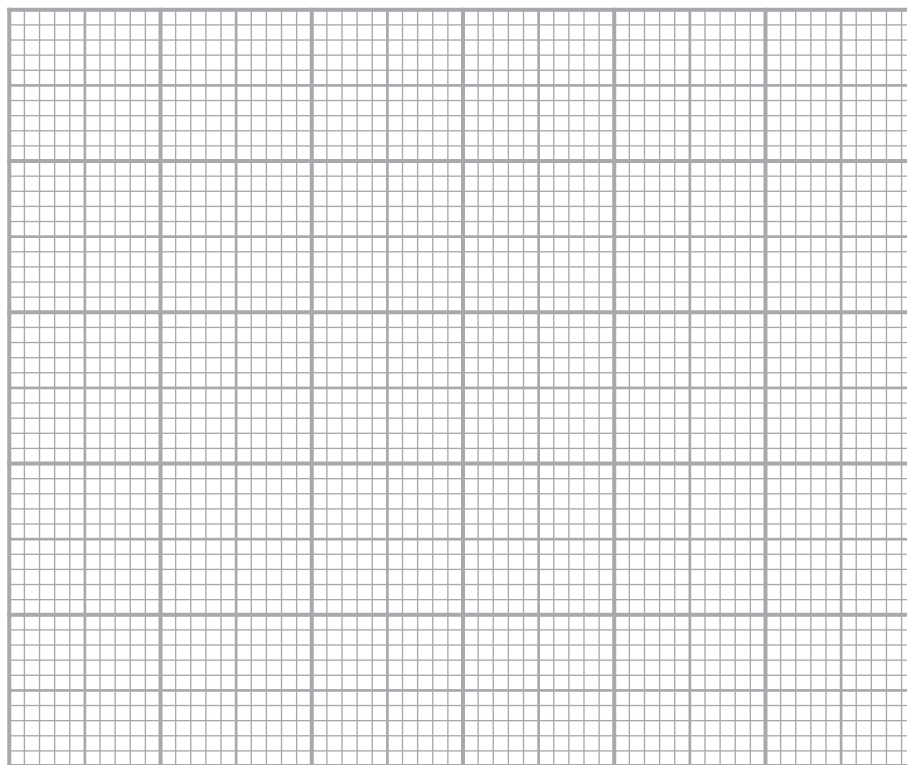
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- (a) Plot a line graph to show how the percentage of people who used ecigarettes and the percentage of people who smoked normal cigarettes changed between 2011 and 2016.

Join the points with straight lines.

(6)



- (b) Describe the changes in the percentages of people smoking cigarettes and using e-cigarettes between 2011 and 2016.

(2)

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(c) The scientists interviewed 60 000 people each year during the period of the investigation.

Calculate the change in the number of people who were smoking normal cigarettes from 2011 to 2016.

(2)

number of people =

(d) Some people consider e-cigarettes as a less harmful alternative to smoking normal cigarettes.

(i) Explain why using ecigarettes may be thought to be less harmful than smoking normal cigarettes.

(4)

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(ii) Suggest why many doctors are concerned about the use of e-cigarettes.

(2)

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(Total for Question 6 = 16 marks)

