

1.2 Cells as the Basic Units of Living Organisms

Question Paper

Course	CIE A Level Biology (9700) exams from 2022
Section	1. Cell Structure
Topic	1.2 Cells as the Basic Units of Living Organisms
Difficulty	Medium

Time allowed: 10

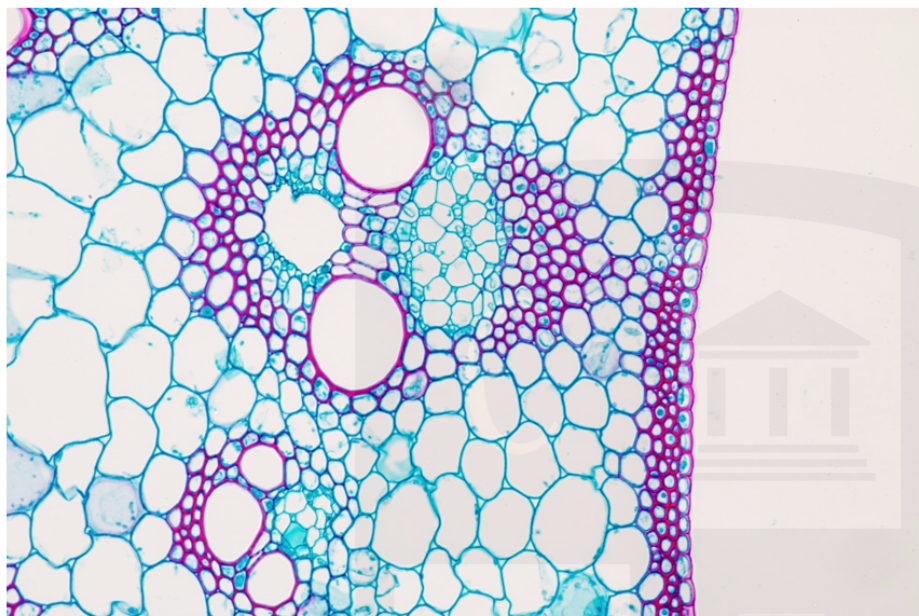
Score: /10

Percentage: /100

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Question 1

The photomicrograph shows a plant tissue. A student was asked to draw a diagram from this and annotate two observable features.



Which of the following would be the correct annotations for this diagram?

- A** Phloem small cells, xylem empty cells to carry water.
- B** Vascular bundles arranged in a regular pattern, xylem large dead cells.
- C** Epidermis darkly stained layer of cells, xylem hollow vessels.
- D** Epidermis formed of a single layer of cells, xylem strengthened by lignin.

[1 mark]

Question 2

The sentence below describes a process and a cellular structure.

Cells which have a high rate of1.... will have many2..... .

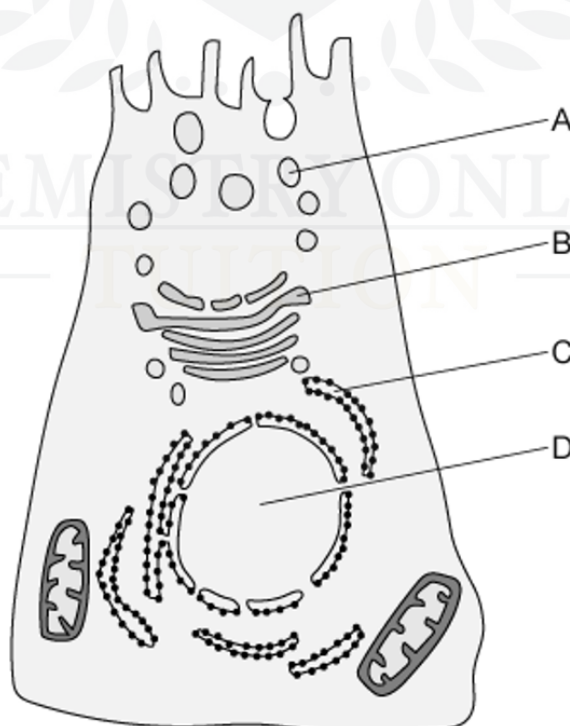
	1	2
A	facilitated diffusion	mitochondria
B	DNA replication	lysosomes
C	exocytosis	vesicles
D	phospholipid production	ribosomes

[1 mark]

Question 3

The diagram shows a cell that secretes glycoproteins. The cell is supplied with radioactively labelled sugar, this is detected in the first instance in the cytoplasm.

In which organelle would the radioactively-labelled glucose be detected after that?



[1 mark]

Question 4

Mucus is produced in the trachea by goblet cells. The following statements describe steps in this process.

- 1 Fusion of the vesicle with the plasma membrane.
- 2 Secretion of a glycoprotein.
- 3 Separation of a vesicle from the Golgi apparatus.
- 4 Addition of carbohydrate to protein.

What is the correct order of these steps?

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

[1 mark]

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Question 5

The list below contains structures that are all features of eukaryotic cells.

- 1 nucleus
- 2 endoplasmic reticulum
- 3 lysosome
- 4 chloroplast
- 5 mitochondria

Which of these structures will have a double membrane?

A 1, 2 & 3 **B** 1, 3 & 4 **C** 1, 4 & 5 **D** 2, 3 & 4

[1 mark]

Question 6

Membrane bound sacs containing the products of metabolism are produced by the endoplasmic reticulum.

Where are these products used?

- A** inside lysosomes only
- B** outside the cell only
- C** inside the cell only
- D** inside and outside the cell

[1 mark]

Question 7

Which of the following structures are found in photosynthetic prokaryotes?

- 1 cellulose wall
- 2 Mesosomes
- 3 Ribosomes
- 4 Chloroplasts
- 5 cell surface membrane

A 1, 3 and 4 **B** 2, 3 and 5 **C** 1, 2, 3 and 4 **D** 1, 2, 3 and 5

[1 mark]

Question 8

Which of observations would indicate that the student is observing a eukaryotic cell?

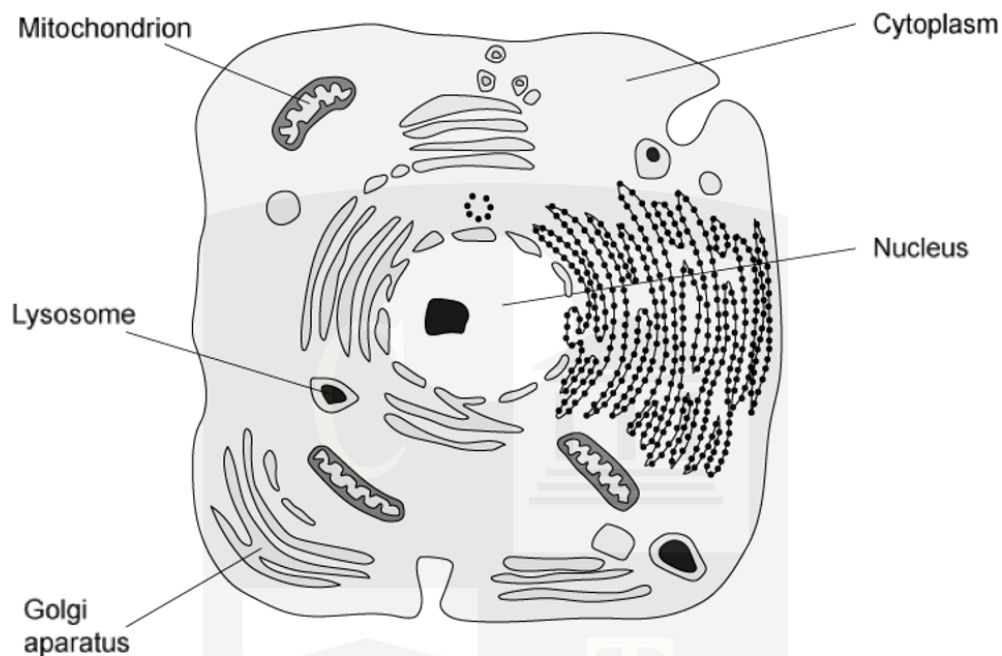
	cytoplasm includes endoplasmic reticulum	protein molecules are associated with the DNA	ribosomes distributed through the cytoplasm
A	X	✓	X
B	X	X	X
C	✓	✓	✓
D	✓	X	✓

Key: ✓ = found in eukaryotes, X = not found in eukaryotes

[1 mark]

Question 9

In the diagram is a drawing of an electron micrograph.



Which structures have a double membrane surrounding them?

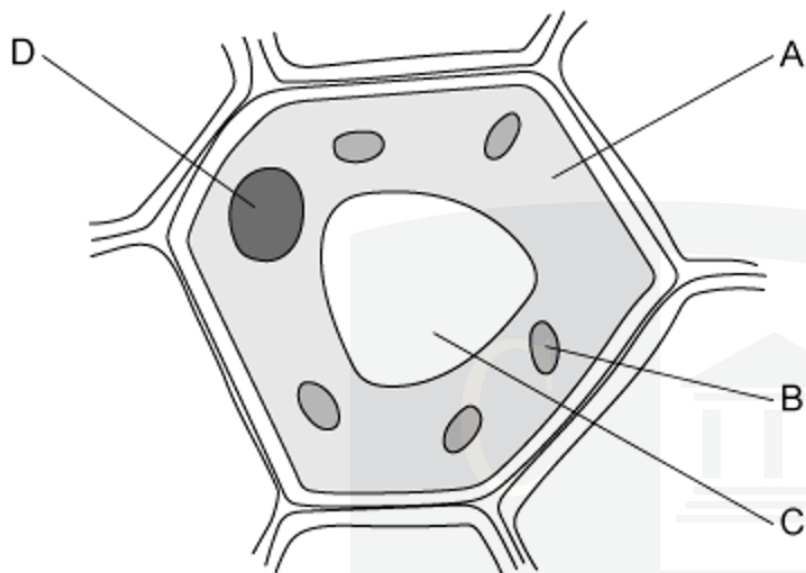
	lysosome	mitochondria	nucleus	Golgi apparatus	cytoplasm
A	✓	✓	✓	✓	✓
B	X	X	X	✓	X
C	X	✓	✓	X	X
D	✓	X	X	X	✓

Key: ✓ = found in eukaryotes, X = not found in eukaryotes

[1 mark]

Question 10

The diagram shows a typical plant cell.



Which of the cell components **A**, **B**, **C** or **D** would be present in prokaryotes?

[1 mark]

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