

# Cell Structure

## Question Paper 1

Level	A Level
Subject	Biology
Exam Board	OCR
Module	Foundations in Biology
Topic	Cell Structure
Booklet	Question Paper 1

**Time allowed:** 47 minutes

**Score:** /35

**Percentage:** /100

### Grade Boundaries:

A*	A	B	C	D	E
>69%	56%	50%	42%	34%	26%

# Question 1

(a) Table 6.1 gives the functions of certain organelles in a eukaryotic cell.

Complete the table by stating the function associated with each organelle.

[3]

The first row has been completed for you.

Organelle	Function
nucleus	contains the genetic material
smooth endoplasmic reticulum	..... .....
lysosome	..... .....
ribosome	..... .....

Table 6.1

(b) One theory about the evolution of organelles is the endosymbiotic theory. This theory suggests that the mitochondria and chloroplasts found in eukaryotic cells represent formerly free-living bacteria that were absorbed into a larger cell.

The following list describes a number of features of mitochondria and chloroplasts.

Place a tick (✓) next to the **three** statements that could be used as evidence for the endosymbiotic theory.

- mitochondria contain ribosomes that are smaller than those found in the cell cytoplasm
- chloroplasts contain chlorophyll and other photosynthetic pigments
- mitochondria are a similar size to bacteria
- the inner membrane of a mitochondrion is folded to form cristae
- chloroplasts contain many disc-shaped membranes called thylakoids
- chloroplasts have their own circular DNA

[3]

[Total: 6]

## Question 2

Plant and animal cells have different structural features.

(a) (i) Name **two** features of plant cells that are not features of animal cells. **[2]**

(ii) Name **one** structure present in animal cells that is not present in plant cells. **[1]**

(iii) The cytoskeleton in cells consists of microtubules and microfilaments.  
Describe the roles of the cytoskeleton. **[3]**

(b) The pancreas is an organ that secretes protease enzymes.

Outline how the organelles in pancreatic cells work together to produce and release these protein molecules from the cells.



*In your answer you should use appropriate technical terms, spelled correctly.*

**[5]**

**[Total: 11]**

Fig. 1.1 is a diagram of a plant cell.

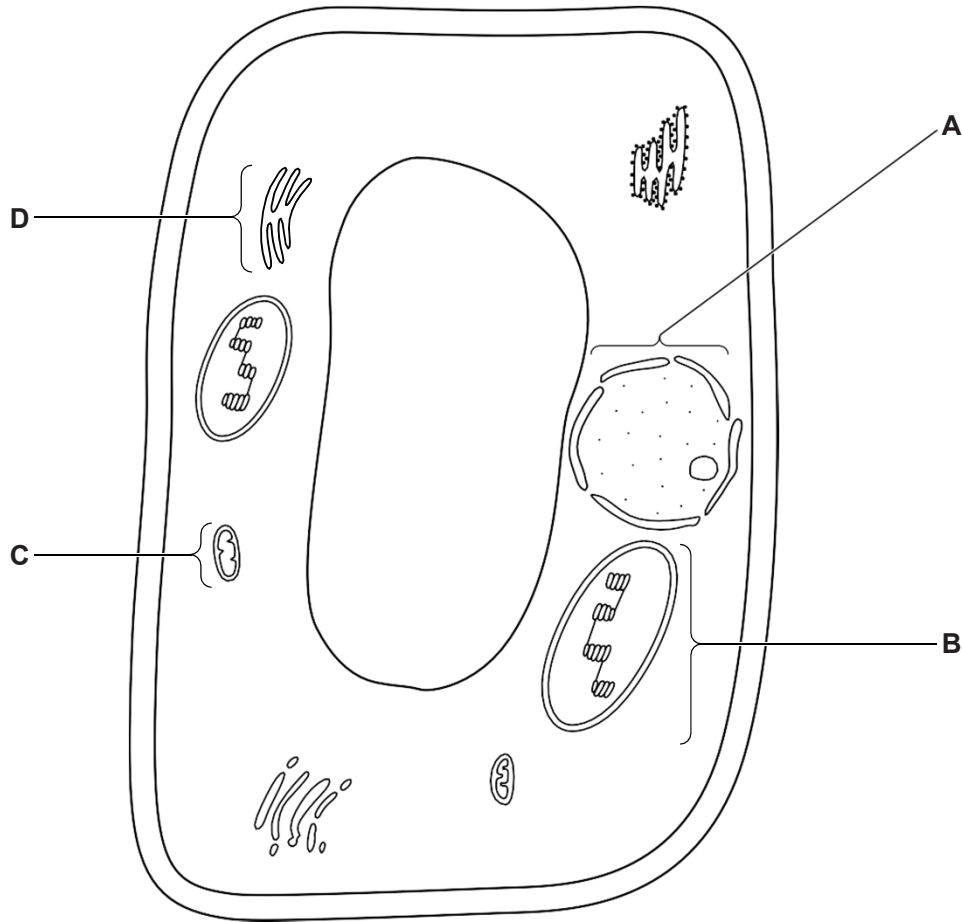


Fig. 1.1

(a) (i) Name the cell components labelled **A** and **B**. [2]

**A**

**B**

(ii) State the **functions** of the components labelled **C** and **D**. [2]

**C**

**D**

**(b)** A student suggested that the details of component **C** could be seen clearly with a very good light microscope.

Explain why the student is **not** correct. **[2]**

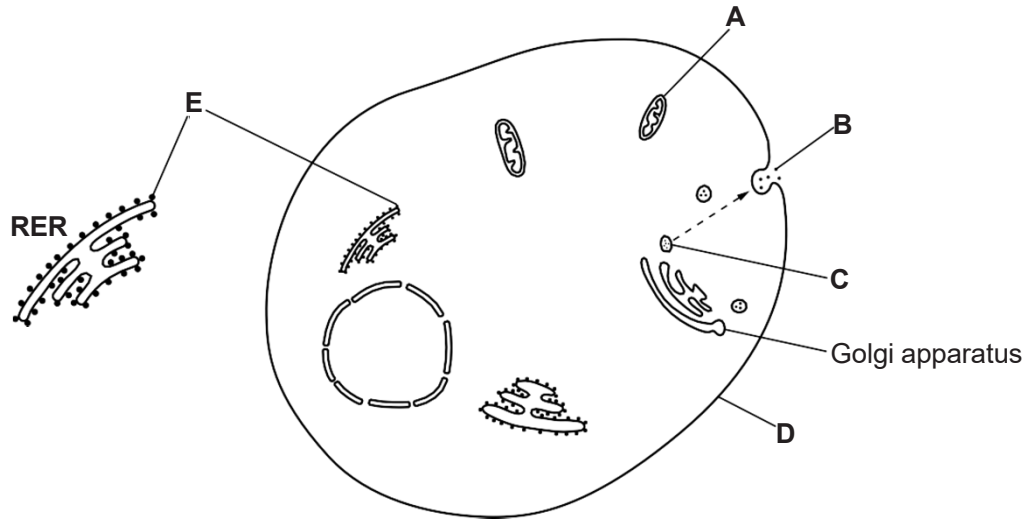
**(c)** Staining is a process often used in microscopy.

Describe the **advantages** of staining specimens to be viewed under a microscope. **[2]**

**[Total: 8]**

## Question 4

Fig. 2.1 is a diagram of a cell showing the organelles involved in the production and secretion of an extracellular protein. The rough endoplasmic reticulum (RER) is shown enlarged at the side of the diagram.



**Fig. 2.1**

- (a) Name the structures labelled **C**, **D** and **E**. [3]
- (i) **C**  
**D**  
**E**
- (ii) Suggest **one** type of extracellular protein secreted at **B**. [1]
- (iii) Organelle **A** provides ATP which is a source of energy.  
Suggest **one** stage during the secretion of a protein that requires energy. [1]
- (iv) Outline the role of the Golgi apparatus. [2]

(b) The cell shown in Fig. 2.1 is a eukaryotic cell.

(i) Identify **two** features, **visible in Fig. 2.1**, which would **not** be present in a prokaryotic cell.

[2]

(ii) Name **one** feature that would be present in the cytoplasm of a prokaryotic cell that is **not** found in a eukaryotic cell.

[1]

[Total: 10]