

# Cell Structure

## Question Paper 1

Level	International A Level
Subject	Biology
Exam Board	Edexcel
Topic	Cell Structure, Reproduction and Development
Sub-Topic	Cell Structure
Booklet	Question paper 1

**Time Allowed:** 45 minutes

**Score:** /37

**Percentage:** /100

**Grade Boundaries:**

A*	A	B	C	D	E	U
>85%	77.5%	70%	62.5%	57.5%	45%	<45%

- 1** Organisms are made of cells. There are differences in the ultrastructure of prokaryotic and eukaryotic cells. There are also differences between plant and animal cells.

(a) Place a cross (X) in the box next to the correct words to complete each of the following statements.

(i) Ribosomes are found in

(1)

- ☐ **A** animal cells only
- ☐ **B** eukaryotic cells only
- ☐ **C** prokaryotic cells only
- ☐ **D** eukaryotic and prokaryotic cells

(ii) Amyloplasts are found in

(1)

- ☐ **A** animal cells only
- ☐ **B** plant cells only
- ☐ **C** prokaryotic cells only
- ☐ **D** eukaryotic and prokaryotic cells

(iii) Mitochondria are found in

(1)

- ☐ **A** animal cells only
- ☐ **B** eukaryotic cells only
- ☐ **C** prokaryotic cells only
- ☐ **D** eukaryotic and prokaryotic cells

(iv) Centrioles are found in

(1)

- ☐ **A** animal cells only
- ☐ **B** all eukaryotic cells
- ☐ **C** prokaryotic cells only
- ☐ **D** eukaryotic and prokaryotic cells

- (b) Eukaryotic cells contain membrane bound organelles. The diagram below shows one of these organelles.



- (i) Place a cross (X) in the box next to the name of this organelle.

(1)

- ☐ A centrioles
- ☐ B Golgi apparatus
- ☐ C mitochondrion
- ☐ D rough endoplasmic reticulum

- (ii) Describe the function of this organelle.

(3)

.....

.....

.....

.....

.....

.....

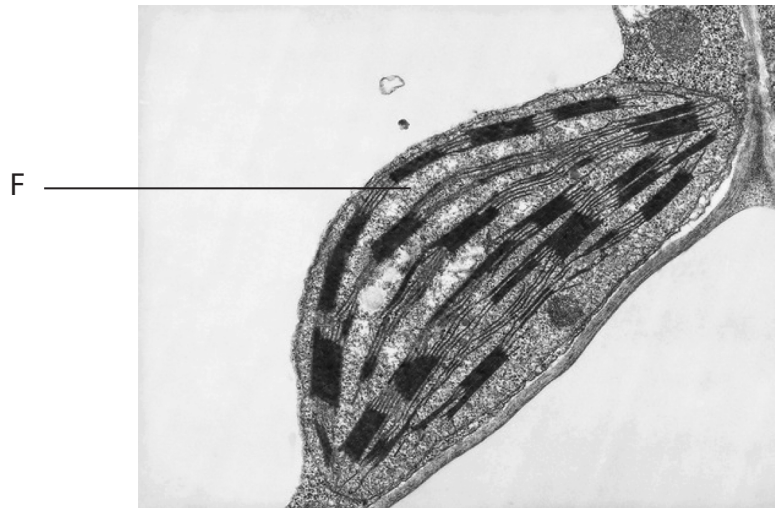
.....

.....

.....

.....

- 2 The photograph below shows an organelle found in some eukaryotic cells.



Magnification  $\times 15\,000$

- (a) Place a cross ☒ in the box that completes each of the following statements.

- (i) The organelle shown in the photograph is

(1)

- ☒ **A** an amyloplast
- ☒ **B** a chloroplast
- ☒ **C** a Golgi apparatus
- ☒ **D** a thylakoid

- (ii) The part of the organelle labelled F is

(1)

- ☒ **A** cytoplasm
- ☒ **B** granum
- ☒ **C** matrix
- ☒ **D** stroma

(b) Give **three** structures that this organelle has in common with a mitochondrion.

(3)

1 .....

.....

2 .....

.....

3 .....

.....

(c) Explain why the presence of this organelle indicates that the cell is eukaryotic.

(1)

.....

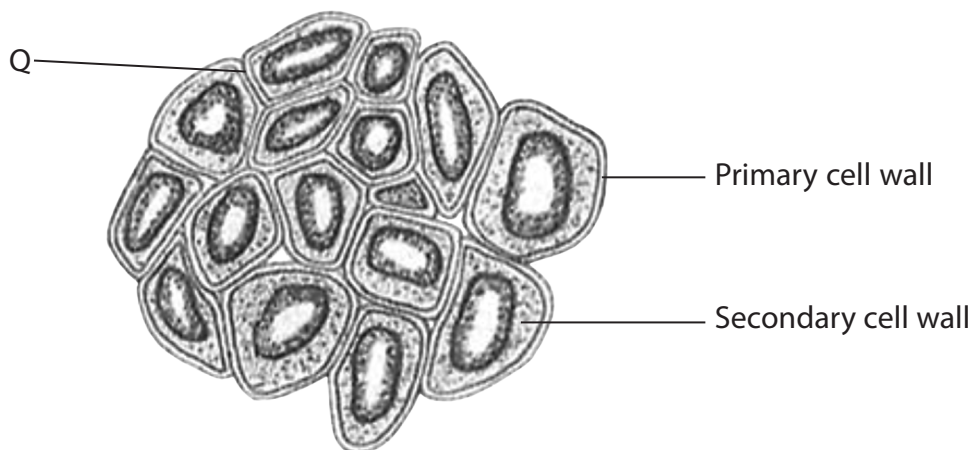
.....

.....

---

(Total for Question 2 = 6 marks)

3 The diagram below shows a cross section through part of a plant stem.



(a) (i) Explain what is meant by the term **tissue**.

(2)

.....

.....

.....

.....

(ii) Identify the tissue shown in the diagram.

(1)

.....

(iii) Place a cross ☒ in the box that completes the following statement.

Letter Q, in the diagram, indicates the

(1)

- ☒ A cell surface membrane
- ☒ B envelope
- ☒ C middle lamella
- ☒ D plasmodesmata

(b) The function of the tissue in the diagram is to provide support.

(i) Name **two** substances found in the secondary cell wall that provide support.

(2)

1 .....

2 .....

(ii) Explain how the structure of the cell walls in this tissue enables it to be strong and flexible.

(2)

.....

.....

.....

.....

.....

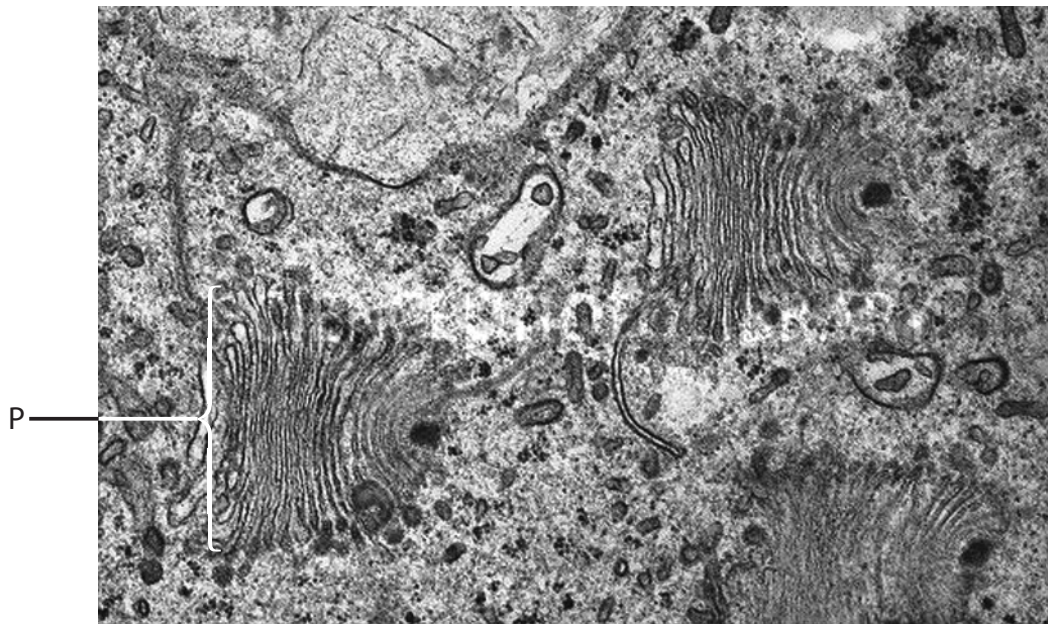
.....

.....

**(Total for Question 3 = 8 marks)**

---

- 4 The electron micrograph below is a section through part of a cell showing a group of organelles.



Magnification  $\times 16\,000$

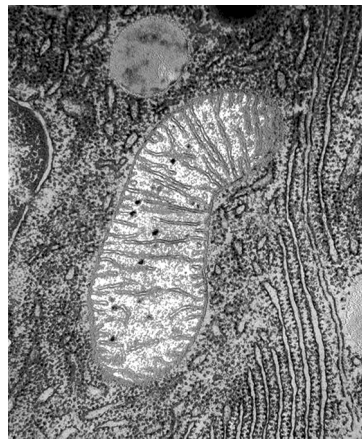
- (a) Place a cross in the box ☐ next to the correct name of the organelle labelled P on the electron micrograph.

(1)

- ☐ **A** amyloplast
- ☐ **B** Golgi apparatus
- ☐ **C** rough endoplasmic reticulum
- ☐ **D** smooth endoplasmic reticulum



- (b) The electron micrograph below is a section through part of a cell showing a mitochondrion.



Magnification  $\times 10000$

- (i) Using information from these electron micrographs and your own knowledge, compare the structure of the mitochondrion with the structure of the organelle labelled P.

(3)

.....

.....

.....

.....

.....

.....

- (ii) Explain why the presence of these two organelles indicates that the cell is eukaryotic.

(1)

.....

.....

.....

- (c) Give the name of a structure found in the cytoplasm of both eukaryotic and prokaryotic cells.

(1)

.....

(Total for Question 4 = 6 marks)

5 The details of the ultrastructure of a cell can be seen using an electron microscope.

(a) Complete the table below. If the organelle can be present, place a tick (✓) in the box and if the organelle could not be present, place a cross (✗) in the box.

(4)

Organelles	Prokaryotic cell	Eukaryotic cell
centrioles		
flagella		
Golgi apparatus		
ribosomes		

(b) Place a cross ✗ in the box next to the correct word or words to complete each of the following statements.

(i) Plant and animal cells may both contain

(1)

- ☐ A amyloplasts, centrioles and mitochondria
- ☐ B centrioles, mitochondria and rough endoplasmic reticulum
- ☐ C chloroplasts, mitochondria and rough endoplasmic reticulum
- ☐ D mitochondria, rough endoplasmic reticulum and smooth endoplasmic reticulum

(ii) The cytoplasmic connections between one plant cell and another are known as

(1)

- ☐ A middle lamellae
- ☐ B plasmodesmata
- ☐ C pits
- ☐ D tonoplasts

(iii) Prokaryotic cells and plant cells both contain

(1)

- ☐ **A** a cell membrane and chloroplasts
- ☐ **B** a cell membrane and mesosomes
- ☐ **C** a cell wall and chloroplasts
- ☐ **D** a cell wall and ribosomes

(iv) Woese suggested that there are three domains based on evidence from

(1)

- ☐ **A** molecular pharmacology
- ☐ **B** molecular phylogeny
- ☐ **C** molecular physiology
- ☐ **D** phenetic taxonomy

(v) The two domains that contain prokaryotic cells are

(1)

- ☐ **A** Animalia and Bacteria
- ☐ **B** Archaea and Bacteria
- ☐ **C** Bacteria and Eukarya
- ☐ **D** Bacteria and Plantae

---

**(Total for Question 5 = 9 marks)**