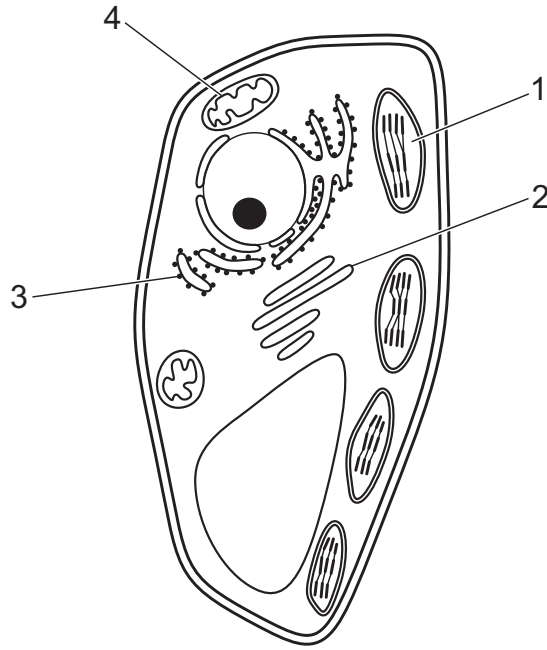


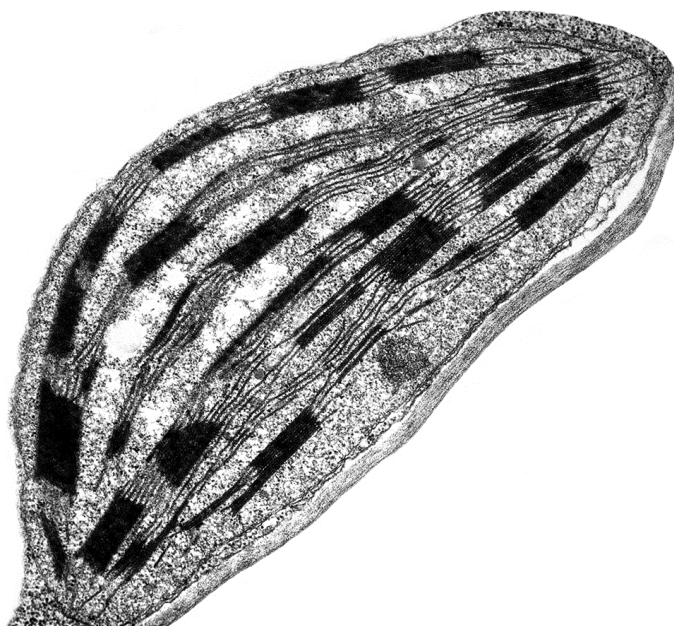
3 The diagram shows a plant cell.



Which labelled organelles would contain nucleotides?

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

4 The image shown is produced using a microscope.



How many statements about this image are correct?

- It is an electron micrograph.
- It shows part of a eukaryotic cell.
- It shows at least one mitochondrion.
- It shows a specimen viewed at more than $\times 400$ magnification.

A 1

B 2

C 3

D 4

5 Bacterial ribosomes consist of two subunits and a total of three rRNA molecules per ribosome. An analysis of **all** the 70S ribosomes from a single cell of the bacterium *Escherichia coli* showed that there were:

- 57 000 rRNA molecules
- three types of rRNA molecule
- 19 000 copies of each type of rRNA molecule.

How many 70S ribosomes were there in the *E. coli* cell?

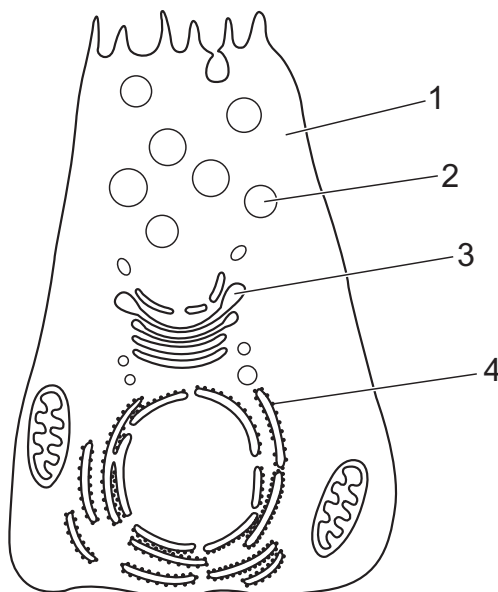
A 9500

B 19 000

C 38 000

D 57 000

- 6 Radioactively labelled amino acids are introduced into a tracheal cell that uses them to make mucus (a glycoprotein).



Which route will the amino acids take?

	first	→			last
A	1	2	3	4	
B	1	4	3	2	
C	4	1	2	3	
D	4	3	2	1	

- 5 Some features of cells are listed.

- 1 cytoplasm
- 2 cell surface membrane
- 3 ribosomes

Which features are found in animal cells and also in prokaryotic cells?

- A** 1, 2 and 3 **B** 1 and 2 only **C** 1 and 3 only **D** 2 and 3 only

- 1 In a photomicrograph of magnification $\times 5000$, a chloroplast measures 25 mm in diameter.

What is the actual diameter of the chloroplast?

- A** $0.2\ \mu\text{m}$ **B** $0.5\ \mu\text{m}$ **C** $2\ \mu\text{m}$ **D** $5\ \mu\text{m}$

- 2** What is a function of Golgi bodies?
- A** formation of vesicles for endocytosis
 - B** modification of proteins for secretion
 - C** synthesis of ATP
 - D** synthesis of polypeptides

- 3** A cell in the human body is specialised for synthesis and secretion of lipids.

Which row shows the organelles required by the cell for synthesis **and** secretion of lipids?

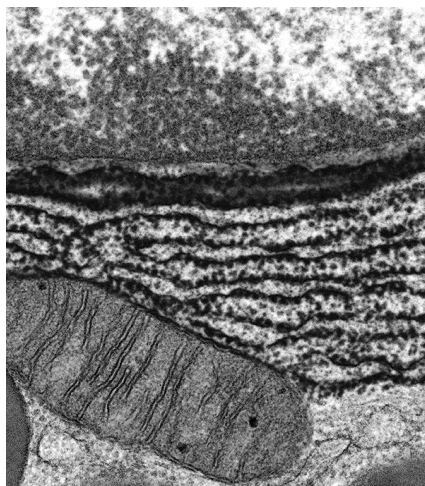
	mitochondria	smooth endoplasmic reticulum	vesicles
A	✓	✓	✓
B	✓	x	x
C	x	✓	✓
D	x	✓	x

key

✓ = required

x = **not** required

4 The photomicrograph shows part of a cell.



Which row is correct?

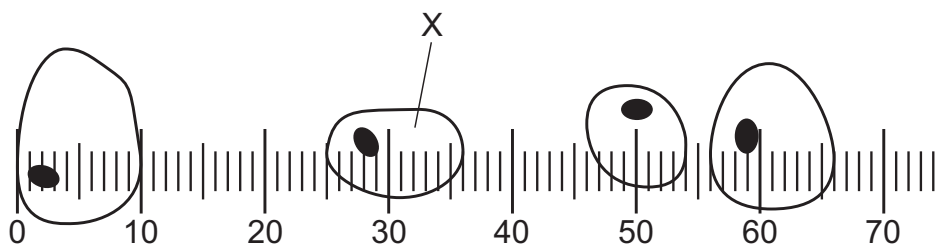
	this cell will contain 70S ribosomes	this could be part of a plant cell	the organelles shown could be used to make antibodies
A	✓	✓	✓
B	✓	✗	✗
C	✗	✓	✗
D	✗	✗	✓

key

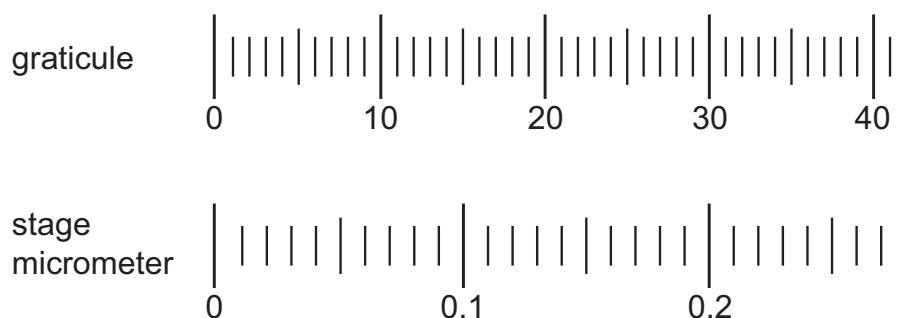
✓ = correct

✗ = **not** correct

- 1 A student observed some cells using a microscope with an eyepiece graticule.



They then replaced the slide containing the cells with a stage micrometer with a millimetre scale, and lined up the eyepiece graticule as shown.



What is the maximum diameter of the cell labelled X?

- A** $0.0066\mu\text{m}$ **B** $66\mu\text{m}$ **C** $73\mu\text{m}$ **D** $733\mu\text{m}$