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	Hard

Time allowed: **10**

Score: **/10**

Percentage: **/100**

Question 1

The table below shows some of the structures found in four different types of cell.

	1	2	3	4
chloroplast	✓	X	X	X
centrioles	X	X	✓	X
cell wall	✓	✓	X	✓
Golgi apparatus	✓	✓	✓	X
large vacuole	✓	✓	X	X

Key: ✓ = present, X = absent

Which option (1, 2, 3 or 4) best matches the cell types below?

	1	2	3	4
A	ciliated epithelial cell	prokaryotic cell	root cortex cell	spongy mesophyll cell
B	spongy mesophyll cell	root cortex cell	ciliated epithelial cell	prokaryotic cell
C	root cortex cell	spongy mesophyll cell	prokaryotic cell	ciliated epithelial cell
D	prokaryotic cell	ciliated epithelial cell	spongy mesophyll cell	root cortex cell

[1 mark]

Question 2

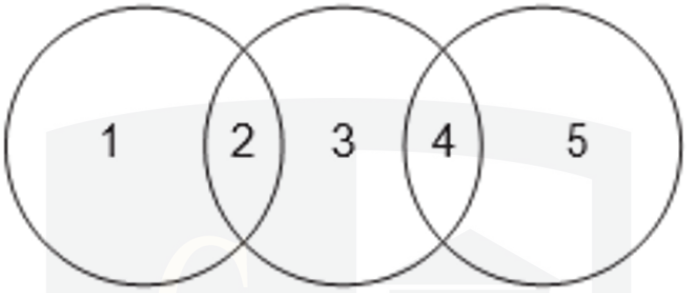
Which row correctly describes the function and structure of a cellular structure?

	structure	function
A	membrane-bound sacs, arranged as a flattened sac	organises microtubules to produce the spindle
B	non-membrane bound cylindrical structures	packages hydrolytic enzymes used in cell
C	membrane-bound spherical structure	synthesises polypeptides
D	membranes which surround an enclosed inner cavity	synthesises lipids

[1 mark]

Question 3

The diagram shows similarities between chloroplasts, mitochondria and typical prokaryotes.



Which row shows the correct relationship?

	1	2	3	4	5
A	mitochondria	70S ribosomes	chloroplasts	80S ribosomes	prokaryotes
B	mitochondria	70S ribosomes	chloroplasts	80S ribosomes	prokaryotes
C	chloroplasts	70S ribosomes	prokaryotes	80S ribosomes	mitochondria
D	chloroplasts	70S ribosomes	prokaryotes	70S ribosomes	mitochondria

[1 mark]

Question 4

A giant bacterium, *Epulopiscium fishelsoni* was discovered in 1985.

Which cell structure(s) would enable biologists to classify *Epulopiscium* as prokaryotic?

A Circular DNA free in the cytoplasm.

B A pair of centrioles close to the nuclear pore.

C Smooth endoplasmic reticulum throughout the cytoplasm.

D A cellulose cell wall outside the plasma membrane.

[1 mark]

Question 5

A cell which is actively growing is supplied with radioactive amino acids.

Which cell component will show an increase in radioactivity first?

A rough endoplasmic reticulum

B Golgi apparatus

C mitochondria

D nucleus

[1 mark]

Question 6

The basic structure of a virus is made up of a protein coat and genetic material.

What is the name given to the protein coat?

A peplomers

B capsomeres

C capsid

D virion

[1 mark]

Question 7

The genome of a virus consists of:

A DNA or RNA

B DNA

C RNA

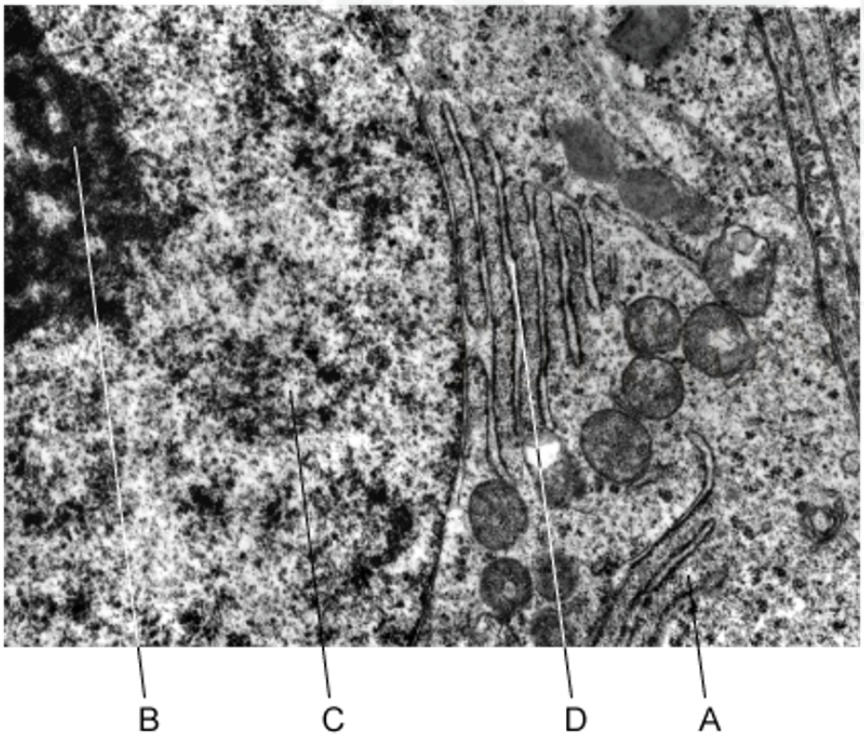
D DNA and RNA

[1 mark]

Question 8

The image below is an electron micrograph of an animal cell.

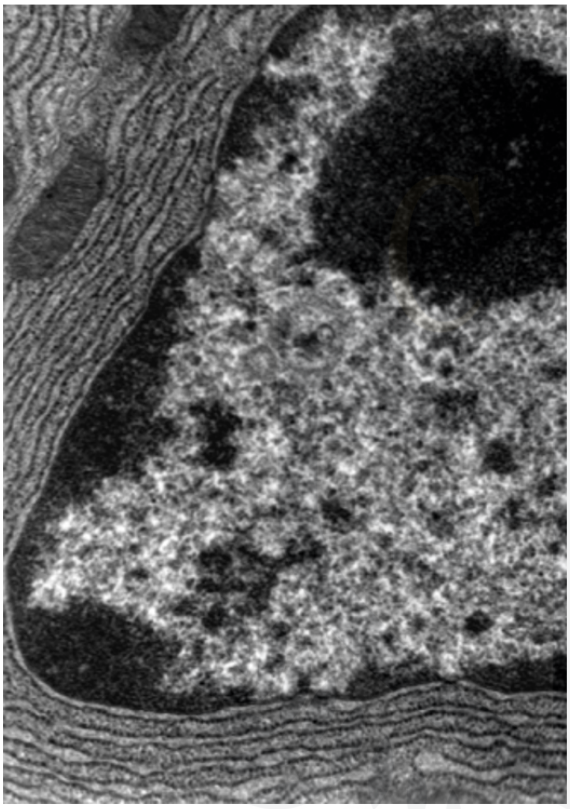
Which one of the options A to D, would be the site of protein modification and packaging?



[1 mark]

Question 9

The image below is an electron micrograph of an animal cell.



Which of the following will be produced in large quantities in the cell?

1 Glucose

2 RNA

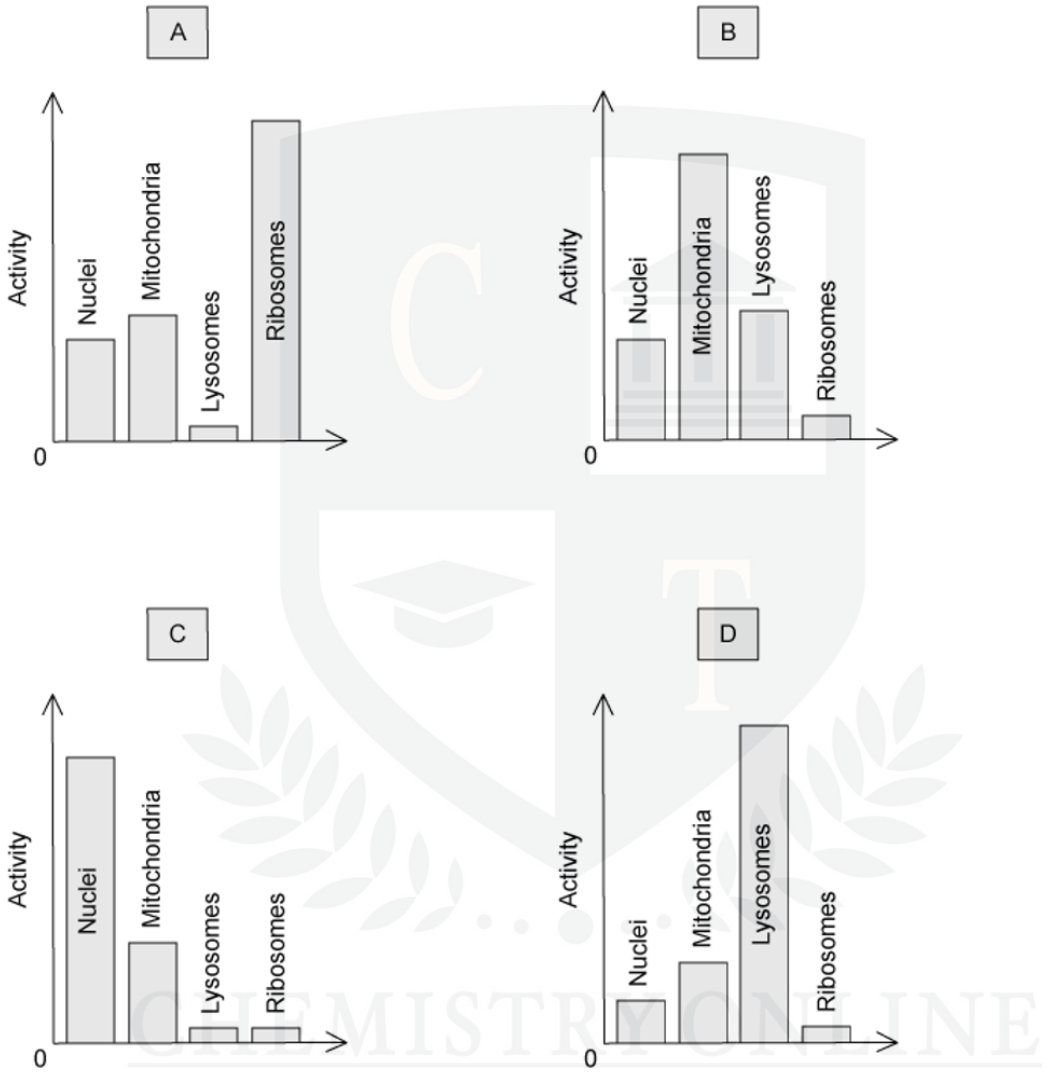
3 ATP

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

[1 mark]

Question 10

Some mammalian tissue was homogenised and centrifuged. The biochemical activity of four of the fractions was investigated.



Which diagram shows a tissue with a high synthesis of messenger RNA?

[1 mark]