

# 1.2 Cells: Origin & Ultrastructure

## Question Paper

Course	DP IB Biology
Section	1. Cell Biology
Topic	1.2 Cells: Origin & Ultrastructure
Difficulty	Hard

**Time allowed:** 10  
**Score:** /5  
**Percentage:** /100

### Question 1

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

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

- A. Circular DNA and 70S ribosomes occurring freely in the cytoplasm and a cell wall made of murein.
- B. A pair of centrioles close to the nuclear pore with 70S and 80S ribosomes occurring freely in the cytoplasm.
- C. Smooth endoplasmic reticulum throughout the cytoplasm and a cell wall made of murein.
- D. A cellulose cell wall outside the plasma membrane with 70S ribosomes and circular DNA occurring freely in the cytoplasm.

[1 mark]

### Question 2

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

Which cell component will show an increase in radioactivity first?

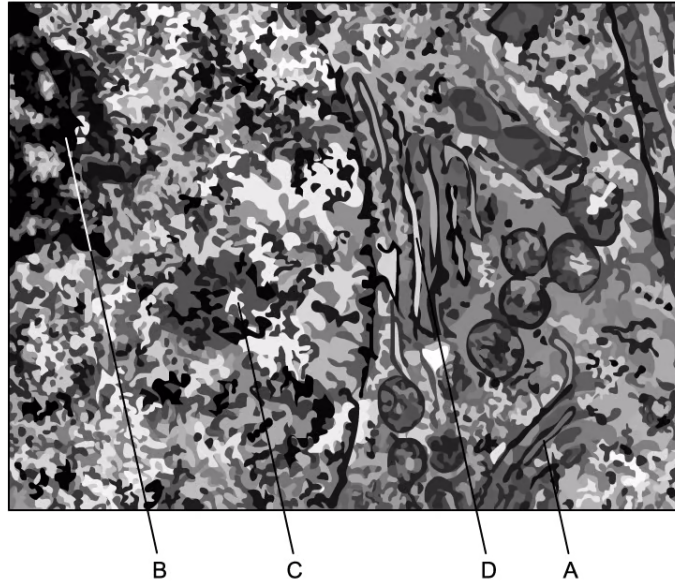
- A. Mitochondria
- B. Golgi apparatus
- C. Rough endoplasmic reticulum
- D. Nucleus

[1 mark]

### Question 3

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

Which of the following options (**A** to **D**) would be the site of protein modification and packaging?



[1 mark]

### Question 4

In the 19th century Louis Pasteur carried out an experiment that **disproved** a popular theory at the time.

What was that theory?

- A. That new traits in organisms evolve due to changes that occur during the organisms lifetime
- B. That new organisms can appear spontaneously from non-living matter
- C. That mitochondria came about due to a process of endosymbiosis
- D. That traits are inherited by the passing down of proteins from parents to offspring

[1 mark]

**Question 5**

The role of exocrine gland cells in the pancreas is to secrete digestive enzymes into the pancreatic duct.

Which of the following organelles does **not** directly help it to achieve this task?

- A. Rough endoplasmic reticulum
- B. Golgi apparatus
- C. Lysosomes
- D. Mitochondria

[1 mark]