

Smart Edu Hub / Smart Exam Resources

9700 / CAIE A level Biology / Paper-1/ Multiple Choice
Questions

1.2.9-Mitochondria-Set-1-qp

Total Questions: 11

Questions

Question 1:

Which cell structures produce ATP?

- 1 chloroplasts
- 2 mitochondria
- 3 nucleus

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

Question 2:

Which statements are correct for a green plant?

- 1 ATP is produced by mitochondria.
- 2 ATP is produced by chloroplasts.
- 3 ATP forms part of the DNA.

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

Question 3:

Which cell components are present in **all** prokaryotic cells?

	cell surface membrane	cell wall	endoplasmic reticulum	flagellum
A	✓	✓	x	✓
B	✓	x	✓	x
C	✓	✓	x	x
D	x	✓	✓	✓

key

✓ = present

x = not present

Questions (Continued)

Question 4:

Which cell components contain mRNA?

- 1 chloroplast
- 2 mitochondrion
- 3 nucleus
- 4 rough endoplasmic reticulum

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

Question 5:

Which of the cell organelles, when appropriately stained, will be clearly visible under the high power ($\times 400$) of the light microscope?

	lysosomes	endoplasmic reticulum	mitochondria	chloroplasts
A	✓	✓	x	x
B	✓	x	✓	x
C	x	✓	✓	✓
D	x	x	x	✓

key

✓ = visible

x = not visible

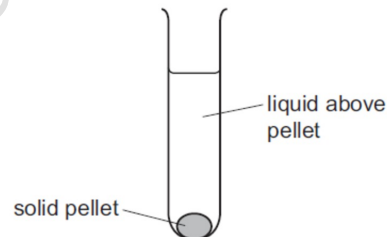
Questions (Continued)

Question 6:

A scientist carried out an experiment to separate the organelles in an animal cell by mass.

The scientist mixed the cells with a buffer solution which had the same water potential as the cells. He then broke the cells open with a blender to release the organelles.

The extracted mixture was filtered and then spun in a centrifuge at a high speed to separate the heaviest organelle. This sank to the bottom, forming a solid pellet, 1.



The liquid above pellet 1 was poured into a clean centrifuge tube and spun in the centrifuge at a higher speed to separate the next heaviest organelle. This organelle sank to the bottom, forming a solid pellet, 2.

He repeated this procedure twice more to obtain pellet 3 and pellet 4, each containing a single organelle.

What is the function of the organelle extracted in pellet 2?

- A digestion of old organelles
- B production of ATP
- C production of mRNA
- D synthesis of protein

Question 7:

A culture of human cells had its cell surface membranes removed, releasing the cell contents.

This material became contaminated by bacteria.

The material was then centrifuged, separating out the various cell structures according to size and mass.

Which cell structure would be separated out along with the bacteria?

- A endoplasmic reticulum
- B mitochondria
- C nuclei
- D ribosomes

Questions (Continued)

Question 8:

Which size of ribosome is found in mitochondria?

- A** 60S **B** 70S **C** 80S **D** 90S

Question 9:

For which process is the large surface area of the cristae in the mitochondria important?

- A** energy radiation
B enzyme reaction
C gaseous exchange
D protein synthesis

Question 10:

When mitochondria are extracted from cells for biochemical study, they are usually kept in a 0.25 mol dm^{-3} sucrose solution.

Why is the sucrose solution used?

- A** to act as a solvent
B to enable the rate of reaction of the mitochondria to be determined
C to prevent the mitochondria from changing in structure
D to provide a source of energy

Questions (Continued)

Question 11:

Where would cristae be found in a cell?

- 1 endoplasmic reticulum
- 2 Golgi apparatus
- 3 mitochondrion

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