BTECRevision

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BIOLOGY

FREE SAMPLE

UNIT 1 · EXAM PRACTICE

Paper 1 — Question 1 with its mark scheme

A complete opening question from the existing bundle. The full product contains two 60-minute, 50-mark papers and two detailed mark schemes.

Try the questions before reading the included solutions.

Extract pages retain their original page numbers.

Independent original practice. Not an official Pearson assessment.

Aligned to Pearson AAQ Applied Science, specification Issue 7 (May 2026).

Question 1 - Cells at work

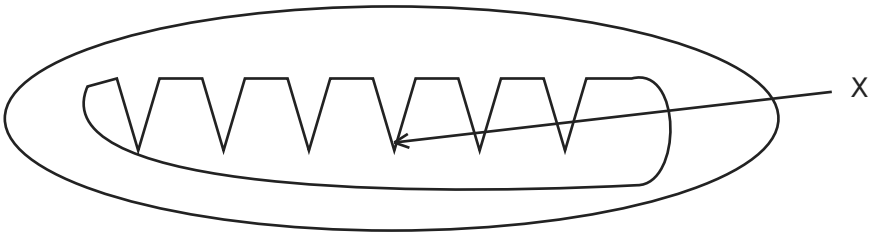


Figure 1. Original schematic of a mitochondrion. Not to scale. The arrow indicates structure X.

(a) Which structure makes proteins in a bacterial cell? Tick one box. **(1)**

- ☐ A Nucleoid
- ☐ B 70S ribosome
- ☐ C Plasmid
- ☐ D Cell wall

(b) Name the folded membrane labelled X in Figure 1. **(1)**

(c) Explain how the folds at X help a cell with a high demand for ATP. **(2)**

(d) The long axis of the image measures 46 mm. The actual organelle is 2.3 µm long. Calculate the image magnification. Use the stated measurement, not a ruler. **(3)**

(e) Name the membrane surrounding the large central vacuole of a plant cell. **(1)**

Total for Question 1 = 8 marks

Question 1 - Cells at work

1(a) | 1 marks
B: 70S ribosome (1). More than one choice scores zero.

1(b) | 1 marks
Inner mitochondrial membrane / crista (1). Accept cristae. Do not accept outer membrane.

1(c) | 2 marks
Increased membrane surface area (1); more space for proteins involved in aerobic ATP production, allowing more ATP to be produced (1). Do not require names of respiratory-chain complexes.

1(d) | 3 marks
Convert 46 mm to 46 000 µm (1); magnification = image size / actual size = 46 000 / 2.3 (1); x20 000 (1). Magnification has no unit. Accept 2.0×10^4. One unit-conversion slip: retain the division method mark only.

1(e) | 1 marks
Tonoplast (1). Do not accept cell-surface membrane.

Total for Question 1 = 8 marks