Full Higher Separate content. ★ = Higher Tier. ◆ = Separate Science only.

Q1. Write the formula for calculating magnification.

[1 mark]

Q2. A cell is 0.04 mm actual size. Its image is 24 mm long. Calculate the magnification.

[2 marks]

★ HIGHER TIER

Q3. ★ Compare the use of light and electron microscopes for studying cells.

[3 marks]

Total: 6 marks

Microscopy (B1a)

Q1 (1 mark)

Write the formula for calculating magnification.

• Magnification = Image size ÷ Actual size [1]

Q2 (2 marks)

A cell is 0.04 mm actual size. Its image is 24 mm long. Calculate the magnification.

• Magnification = 24 ÷ 0.04 [1]

• = ×600 [1]

Q3 (3 marks) [★ HT]

★ Compare the use of light and electron microscopes for studying cells.

• Light: max ~×1500, resolution ~200 nm, can view living cells [1]

• Electron: much higher magnification/resolution, dead samples only, complex preparation [1]

• Electron microscope can resolve organelle detail (ribosomes, cristae) not visible with light [1]