

Smart Edu Hub / Smart Exam Resources

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

1.1.4-Light-Electron-Microscope-Set-1-qp

Total Questions: 11

Questions

Question 1:

A student made notes describing photomicrographs of four cells.

- cell 1 Grey cytoplasm at edge of cell contains many black lines and spots. Large white area in centre of cell.
- cell 2 Grey cytoplasm contains many black lines and spots which fill the entire cell.
- cell 3 Pale blue cytoplasm surrounds a single dark blue spot.
- cell 4 Many green structures are enclosed within a rectangular shape with visible boundaries.

Which table identifies the type of cell and the type of microscope used to take each photograph?

A

	animal cell	plant cell
electron microscope	1	2
light microscope	3	4

B

	animal cell	plant cell
electron microscope	1	2
light microscope	4	3

C

	animal cell	plant cell
electron microscope	2	1
light microscope	3	4

D

	animal cell	plant cell
electron microscope	2	1
light microscope	4	3

Question 2:

Which combination of lenses for a light microscope will give the greatest magnification?

	eyepiece lens	objective lens
A	×5	×100
B	×10	×40
C	×15	×40
D	×15	×100

Questions (Continued)

Question 3:

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

Question 4:

Which cell structure can be seen only with an electron microscope?

- A cell surface membrane
- B chromosome
- C nucleolus
- D vacuole

Question 5:

What restricts the resolution of the light microscope?

- A the inability to cut very thin sections
- B the low light intensity of microscope lamps
- C the low magnification produced by glass
- D the wavelengths of visible light

Questions (Continued)

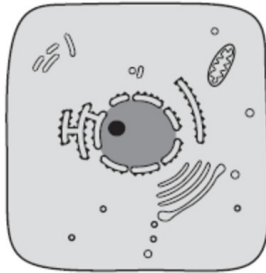
Question 6:

A microscope has a resolution of 200 nm. Which of the following organelles would **not** be resolved using this microscope?

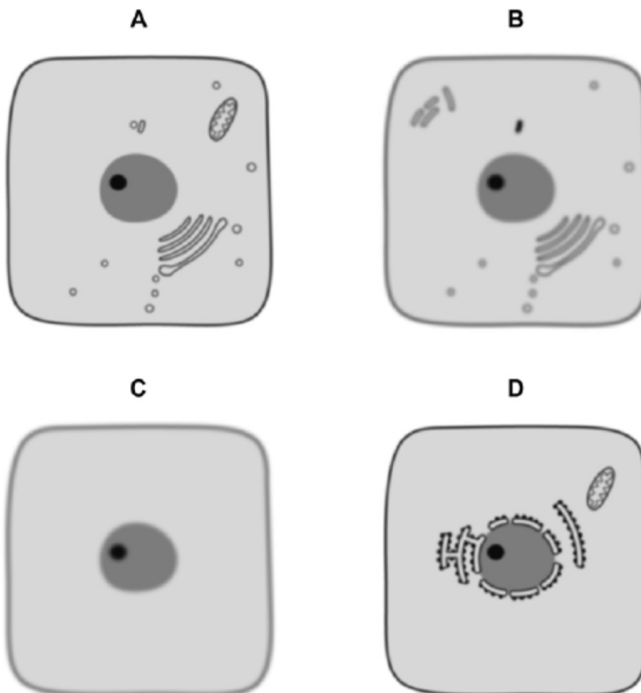
- A chloroplasts
- B lysosomes
- C mitochondria
- D ribosomes

Question 7:

The diagram below is drawn from an electron micrograph of an animal cell.



Which represents the same cell, seen under a light (optical) microscope at $\times 400$ magnification?



Questions (Continued)

Question 8:

Which of the cell organelles 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

✓ = clearly visible

x = not clearly visible

Question 9:

Which structure is measured in the units shown using a light microscope?

	structure	unit
A	cell surface membrane	nm
B	cell wall	nm
C	chloroplast	μm
D	ribosome	μm

Question 10:

Which cell structure can be seen **only** with an electron microscope?

- A cell wall
- B chromosome
- C nucleolus
- D ribosome

Questions (Continued)

Question 11:

Plant cells are fixed, stained and viewed through a light microscope.

What would be clearly visible at x400 magnification?

- A cristae of mitochondria
- B grana of chloroplasts
- C nucleoli
- D ribosomes