

Smart Edu Hub / Smart Exam Resources

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

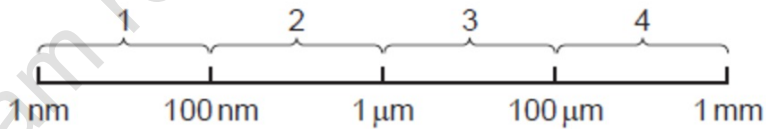
1.1.4-Light-Electron-Microscope-Set-4-qp

Total Questions: 11

Questions

Question 1:

Which size ranges can be viewed using a light microscope?



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

Question 2:

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

Question 3:

At approximately which magnification is light microscopy not suitable because the resolution becomes too low?

- A $\times 100$
- B $\times 200$
- C $\times 400$
- D $\times 1500$

Questions (Continued)

Question 4:

Which of these statements about light microscopy are correct?

- 1 The greater the resolution of a light microscope, the greater the detail that can be seen.
- 2 The greater the magnification of a light microscope, the greater the detail that can be seen.
- 3 Increasing the magnification of a light microscope up to its limit of resolution allows more detail to be seen.
- 4 The shorter the wavelength of light used in a light microscope, the greater the detail that can be seen.

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

Question 5:

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 6:

Which statement explains why it is necessary to use an electron microscope to see the cristae of a mitochondrion?

- A The magnification of the electron microscope is greater than that of the light microscope.
B The membranes of the cristae are separated by a distance greater than 200 nm.
C The resolution of a student microscope using daylight is too low.
D The wavelength of an electron beam is longer than the wavelength of light.

Questions (Continued)

Question 7:

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

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

Question 8:

The recently discovered *Pandoravirus* measures 1000 nm in diameter.

The *Mimivirus* has a diameter of 400 nm.

What can be detected using a light microscope with a maximum resolution of $0.25\text{ }\mu\text{m}$?

- A both the *Mimivirus* and the *Pandoravirus*
- B neither the *Mimivirus* nor the *Pandoravirus*
- C the *Mimivirus*, but not the *Pandoravirus*
- D the *Pandoravirus*, but not the *Mimivirus*

Question 9:

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

	eyepiece lens	objective lens
A	$\times 5$	$\times 100$
B	$\times 10$	$\times 40$
C	$\times 15$	$\times 40$
D	$\times 15$	$\times 100$

Questions (Continued)

Question 10:

When making measurements in experiments, which methods could have parallax errors?

- 1 using a calibrated eyepiece graticule to measure length
- 2 using a measuring cylinder to measure volume
- 3 using a ruler to measure length of a shoot

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

Question 11:

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

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