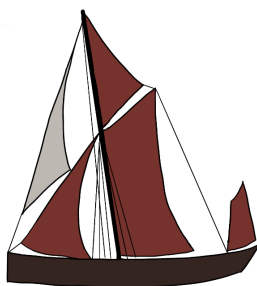

MICROSCOPY & MAGNIFICATION

PAST PAPER QUESTIONS

Science Exams Sorted

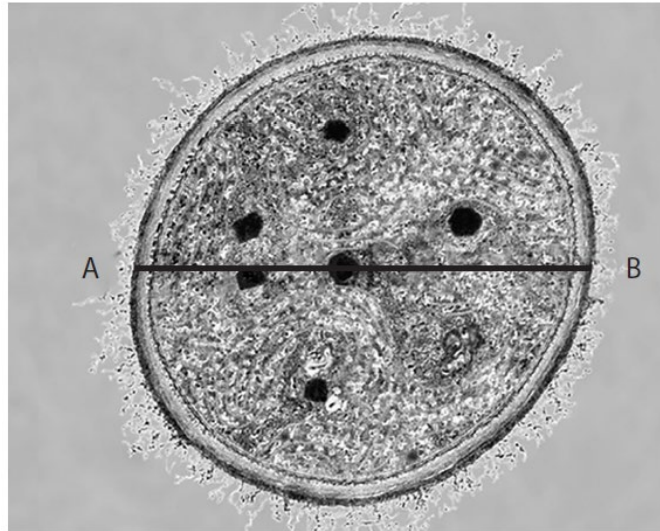


Name:		
Mark: (39)	%	Grade:

2021

Microscopy & Magnification Past Paper Questions

1. The figure below shows a cyanobacterium magnified 50 000 times.
The line AB shows the diameter of the bacterial cell.



Calculate the actual diameter of the cyanobacterium.

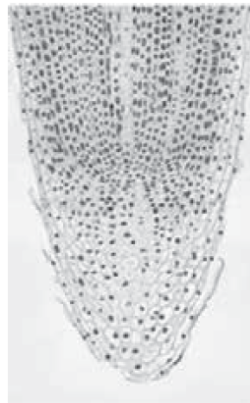
Give your answer in micrometres (μm).

.....
.....
.....

(3)

Edexcel 2019 Higher Paper 1 Q5 b i

2. The figure below shows a root tip with cells in different stages of mitosis.
The image was magnified 400 $\times$.



Explain how a magnification of 400 $\times$ can be obtained using the lenses on a light microscope.

.....
.....

(2)

Edexcel 2018 Higher Paper 1 Q6 c

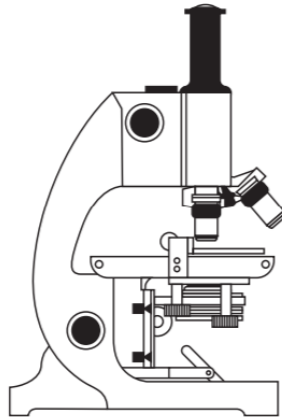
3. A light microscope is used to magnify a cell.

a. The actual width of the cell before it is magnified is 0.02 mm. After magnification the width of the image seen is 3 mm. Calculate the magnification of this cell.

.....

.....

- (2)



Describe how the light microscope is used to obtain clear, detailed images of cells.

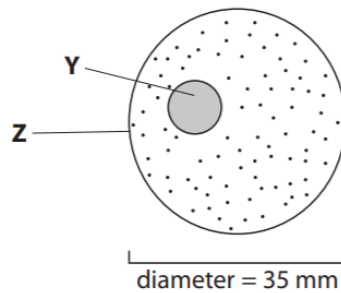
This image shows a full page of white paper with horizontal dotted lines, typical of primary school writing paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

(6)

Edexcel 2018 January Foundation Paper 2 Q5 b

Microscopy & Magnification Past Paper Questions

4. The diagram shows a zygote.



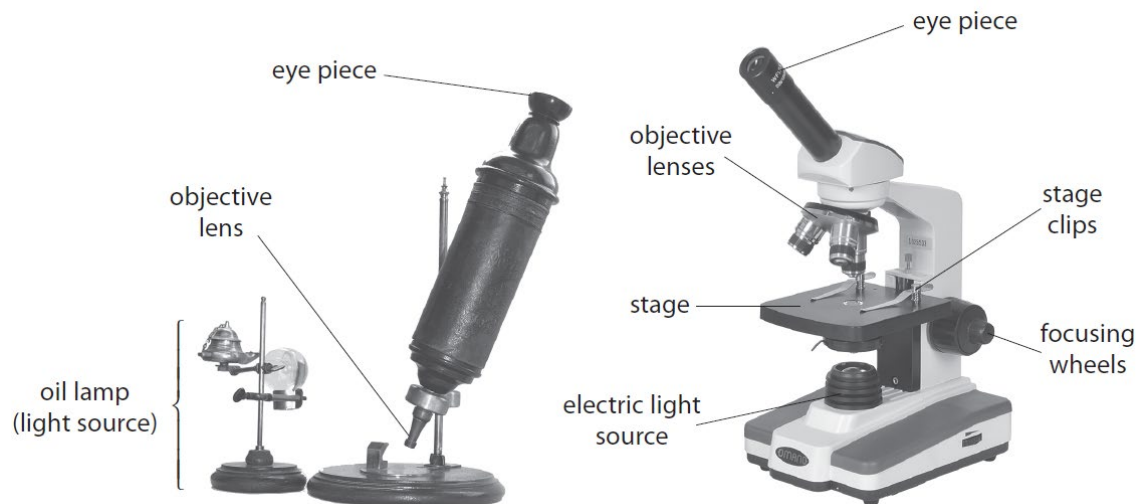
The diameter of the diagram is 35 mm. The diagram is 5000 times larger than the actual zygote. Calculate the diameter of the zygote.

.....

(2)

Edexcel 2017 Foundation Paper 2 Q4 b ii

5. The photographs show a 350 year old light microscope and a modern light microscope.



- a. Suggest how the modern light microscope helps us to see cells in greater detail than the 350 year-old microscope. Use the photographs to help you.

.....

(2)

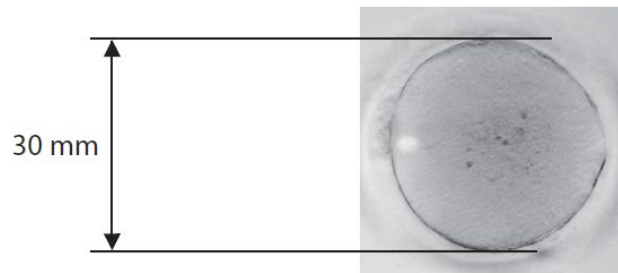
Microscopy & Magnification Past Paper Questions

- b. Complete the sentence by putting a cross (x) in the box next to your answer. Structures in bacterial cells are so small they can only be seen using

- ☐ **A** a hand lens
☐ **B** an electron microscope
☐ **C** a light microscope
☐ **D** a camera

(1)

- c. The photograph shows an animal cell magnified using a modern light microscope.



The magnified animal cell has a diameter of 30 mm. The actual diameter of the animal cell is 0.1 mm.

Calculate how many times the animal cell has been magnified.

.....
.....
.....

(2)

Edexcel 2014 Foundation Paper 2 Q3 a i, ii & b i

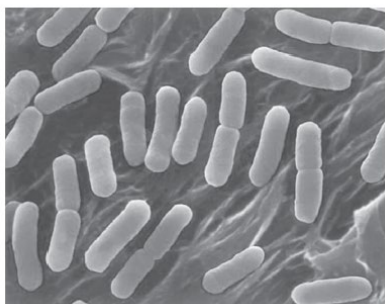
6. Bacteria are microscopic organisms.

- a. State a part of the light microscope that magnifies the bacteria.

.....
(1)

Photograph A was taken using a light microscope and photograph B was taken using an electron microscope.

Photograph A



Photograph B



Microscopy & Magnification Past Paper Questions

- b. Describe two advantages of using an electron microscope to view bacteria.

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.....

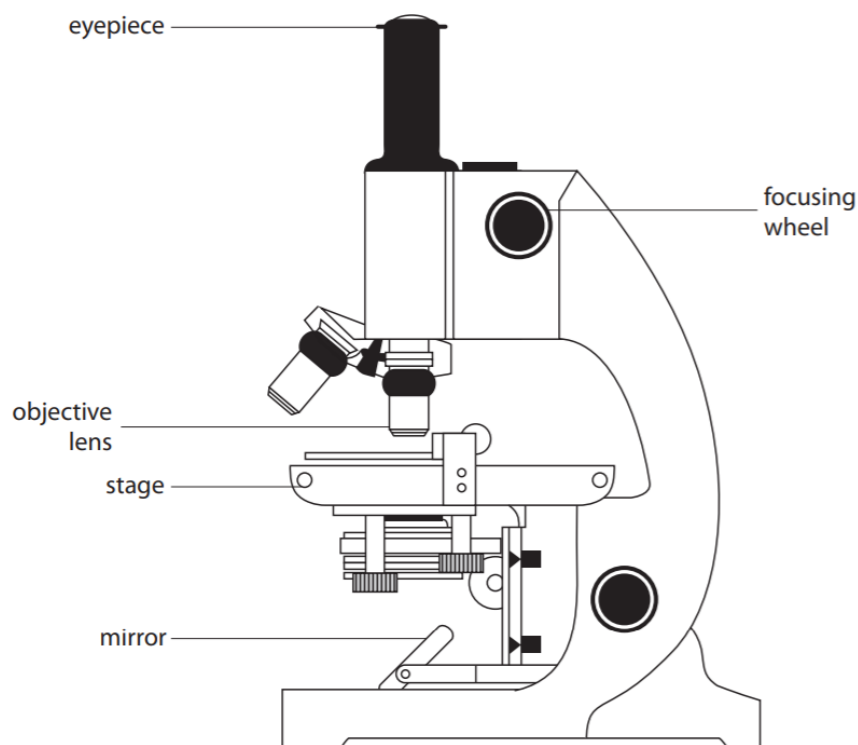
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.....

(2)

Edexcel 2013 March Foundation Paper 2 Q2 c i & ii

7. The diagram shows a light microscope.



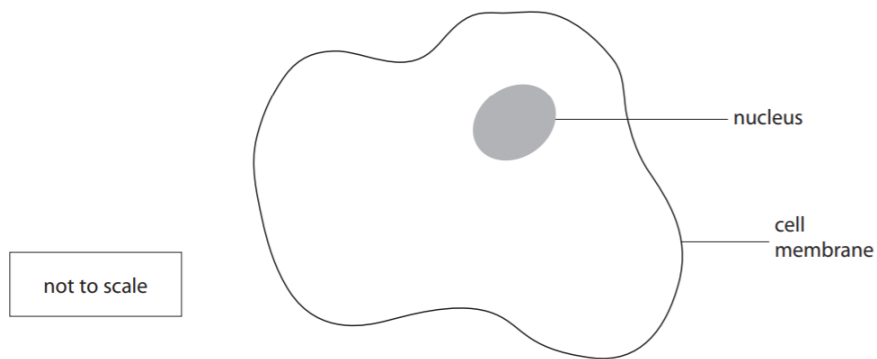
- a. Complete the sentence by putting a cross (x) in the box next to your answer. The focusing wheel is used to

- ☐ **A** decrease the magnification
- ☐ **B** increase the amount of light
- ☐ **C** move the slide on the stage
- ☐ **D** produce a clear, detailed image

(1)

Microscopy & Magnification Past Paper Questions

The diagram shows an animal cell as seen using a light microscope.



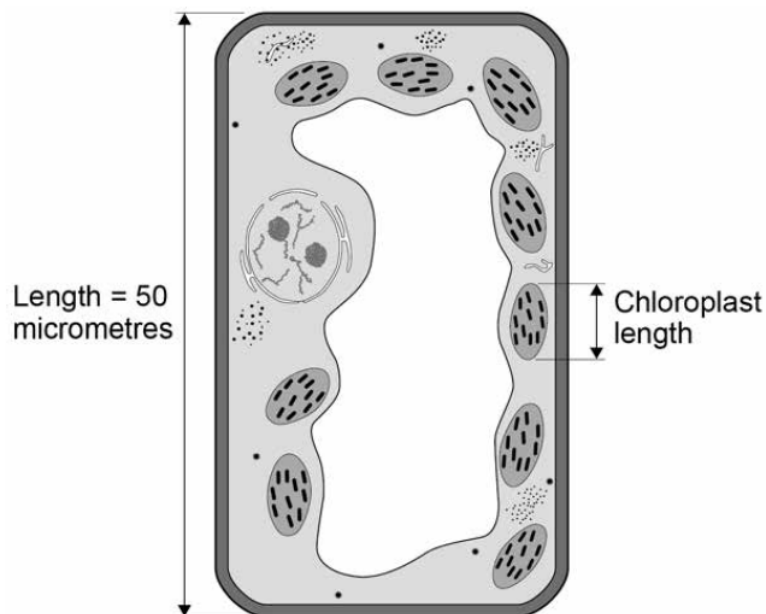
- b. The length of this cell before it is magnified is 0.005 mm. Calculate the length of the image after it has been magnified x400.

.....
.....

(2)

Edexcel 2012 November Foundation Paper Q2 a

8. The figure below shows a plant cell drawn to scale.



Calculate the length of the chloroplast labelled in the figure above.

.....
.....

(2)

AQA 2018 Foundation Paper 1 Q2 (iii)

Microscopy & Magnification Past Paper Questions

9. Ribosomes and mitochondria are not shown in the figure below.

a. What type of microscope is needed to see ribosomes and mitochondria?

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(1)

b. What is the advantage of using the type of microscope you named in part (a)?

Tick one box.

Cheaper

☐

Higher magnification

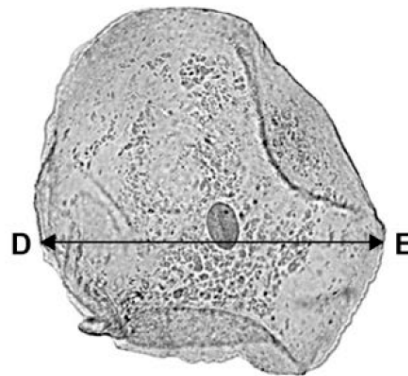
☐

Lower resolution

☐

(1)

The cheek cell in the figure below is magnified 250 times. The width of the cell is shown by the line D to E.



Calculate the width of the cheek cell in micrometres (μm). Complete the following steps.

c. Measure the width of the cell using a ruler.

.....
(1)

d. Work out the real width of the cell in mm.

.....
(1)

e. Convert mm to μm .

.....
(1)

f. A red blood cell is $8\ \mu\text{m}$ in diameter.

A bacterial cell is 40 times smaller.

Calculate the diameter of the bacterial cell. Tick one box.

$0.02\ \mu\text{m}$

☐

$0.2\ \mu\text{m}$

☐

$2.0\ \mu\text{m}$

☐

$20.0\ \mu\text{m}$

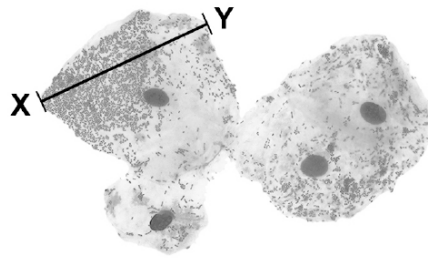
☐

(1)

AQA 2018 Specimen Paper 1 Q3 iii, iv & v

Microscopy & Magnification Past Paper Questions

10. The figure below shows some different cells.



- a. The real length from point X to point Y is 0.06 mm

Calculate the magnification.

Use the equation: $\text{magnification} = \frac{\text{size of image}}{\text{real size of object}}$

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Magnification = $\times$
(3)

- b. The cells shown in the figure above were viewed using a light microscope.

Give two advantages of using an electron microscope instead of a light microscope.

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(2)

AQA 2019 Higher Paper 1 Q1 (v – vi)