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— **TUITION** —

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# BIOLOGY

## FOUNDATIONS IN BIOLOGY

Level & Board	OCR (A-LEVEL)
TOPIC:	CELL STRUCTURE MICROSCOPES
PAPER TYPE:	SOLUTION - 2
TOTAL QUESTIONS	8
TOTAL MARKS	/31

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## Cell Structure and Microscopes - 2

1.

(a) **B:** Scanning electron microscopes and laser scanning confocal microscopes can both produce three dimensional images.

2.

(a)

Golgi body / mitochondria / (smooth / rough) endoplasmic reticulum / ER / RER / SER / ribosomes

Resolution is higher / better

(b) Lower resolution than an electron microscope

Can have a fluorescent tag

Can see movement as can be used on living cells

3.

(a) Z

(b)

Shows surface view

3D / three dimensional

Better resolution than b

4.

(a) 1.7 mm

(b) 50

(c)

Air spaces give buoyancy

Supported by surrounding water

**OR**

Support for a leaf is primarily provided by collenchyma cells and xylem vessels. Collenchyma cells have unevenly thickened walls that add structural support to the leaf and stem, while xylem vessels are structurally adapted to deal with pressure changes and aid in water transport.

**5.**

**(a)** D

**6.**

**(a)** 11.91  $\mu\text{m}$

**7.**

**(a)**

Use eyepiece graticule

Calibrate graticule, using stage micrometer / detail of calibration / calculate the length of one epu

Measure the diameter of the nucleus in, epu / graticule units

Take repeat measurements and calculate a mean diameter in epu

Use calibrated epu to calculate diameter of nucleus in  $\mu\text{m}$  / described

**8.**

**(a)**

Sharp blade should be selected

So slide is thin enough, individual cells are visible / resolution is high

Method for slicing pieces of tissue thinly

So slide is thin enough, individual cells are visible / resolution is high

Select thin nest slides to ensure maximum light can penetrate sample wet mount

Prevents dehydration / distortion of tissue

Squash slide easier to see individual cells / allows light to penetrate tissue more easily

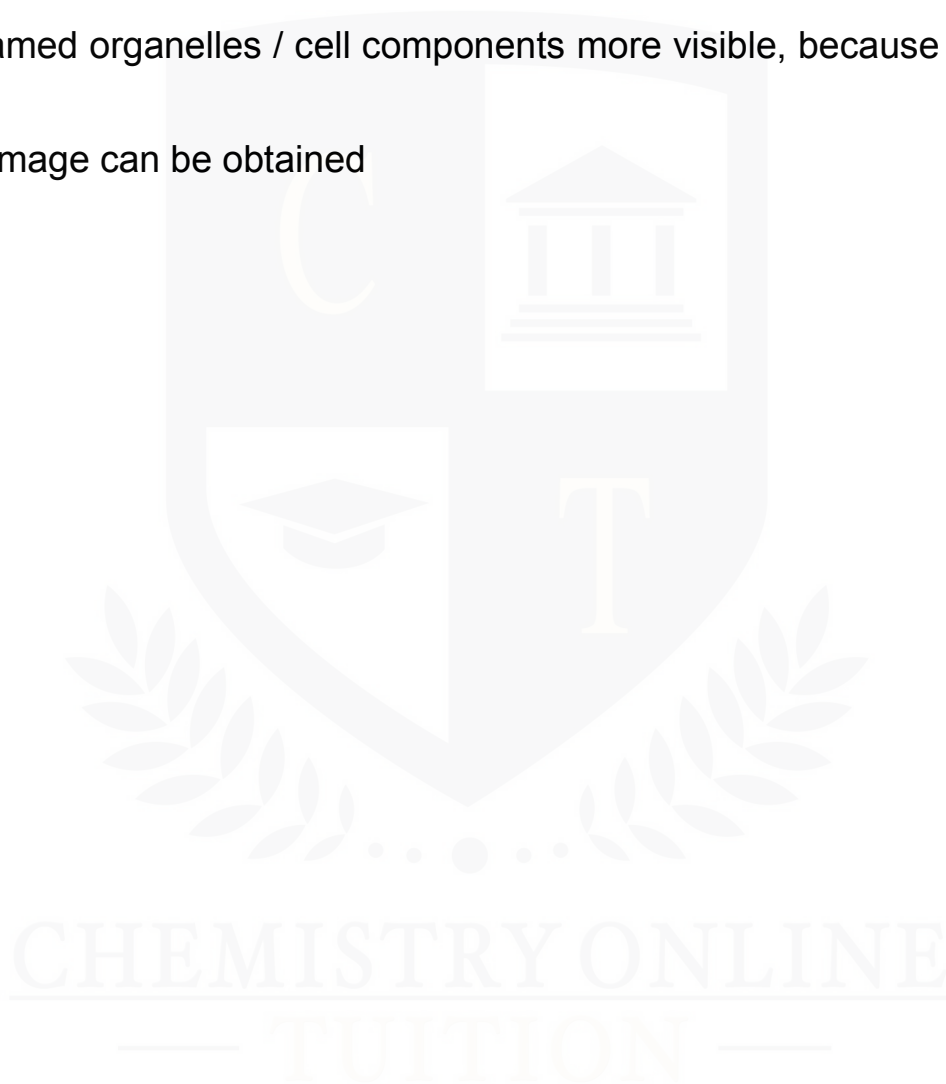
**(b)**

contrast is higher

More internal structures visible

Some named organelles / cell components more visible, because they bind to stain

Clearer image can be obtained



I am Sorry !!!!!



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- Founder & CEO of Chemistry Online Tuition Ltd.
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