

GCSE Biology B (Twenty First Century Science)
J257/03 Breadth in Biology (Higher)

Question Set 13

1

John has cut his leg.

- (a) What role will platelets play in the healing of the cut? [2]

Platelets are cell fragments that clump together at the site of the cut, forming a 'plug'. This reduces blood loss and helps to prevent the entry of microorganisms into the wound.

- (b) (i) The cut gets infected. John's doctor decides to take a sample from the wound and culture the microorganisms.

The doctor must use aseptic techniques to do this.

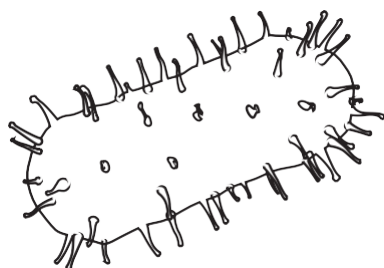
Describe **three** aseptic techniques the doctor may use when culturing the microorganisms.

[3]

Sterilise inoculating loop prior to use by passing it over a Bunsen burner flame. Work near a Bunsen flame. This creates an updraft of air which carries microorganisms away from the Petri dish. Lightly tape the lid of the Petri dish onto the base to prevent microbe entry.

- (ii) The doctor looks at some bacteria from the culture using a microscope.

Look at the image of one bacterium.



The actual length of this bacterium is $3.5 \mu\text{m}$. $1 \mu\text{m} = 0.001 \text{ mm}$

Calculate the magnification of the image of the bacteria.

Use the equation: magnification = measured size \div actual size

Give your answer to **3** significant figures.

Measured size is 45 mm.

$$\begin{aligned} \text{Magnification} &= 45 \div 0.0035 \\ &= \times 12900 \end{aligned}$$

Magnification = \times **12900**

[3]

Total Marks for Question Set 13: 8

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