

4 The root tip squash procedure can be used to observe cells undergoing mitosis.

(a) Explain the role of mitosis in the development of roots.

(2)

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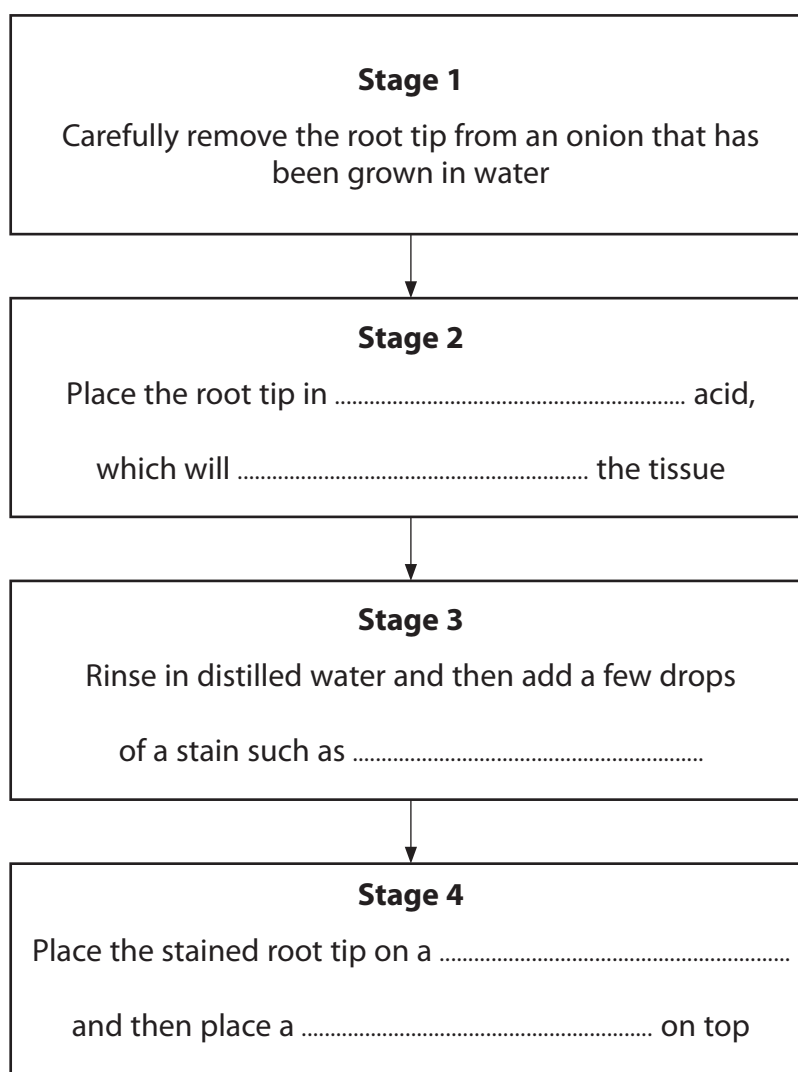
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(b) (i) The flow chart below describes the stages involved in staining a root tip squash to show mitosis.

Complete the flow chart by writing the most appropriate word or words on the dotted lines.

(3)



(ii) Describe **one** safety precaution that should be taken when carrying out this procedure.

(1)

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*(c) Following mitosis, some cells undergo differentiation to become specialised tissues, such as xylem.

Explain how cells differentiate to become specialised tissues.

(4)

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(d) Similar staining techniques can be used to observe cells undergoing meiosis.

- (i) Name a process that may be observed in cells undergoing meiosis but **not** mitosis.

(1)

- (ii) Explain how meiosis can give rise to genetic variation in the gametes produced.

(2)

(Total for Question 4 = 13 marks)

