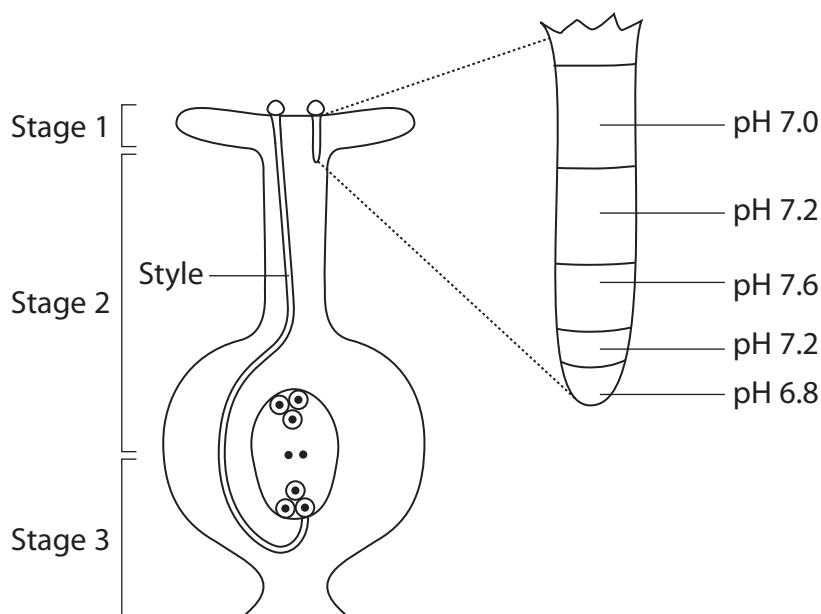


5 Sexual reproduction in plants includes the transfer and fusion of gametes.

The diagram below shows part of a flower with two pollen grains and their pollen tubes.

The diagram also shows an enlargement of one of the pollen tubes and the pH of the cytoplasm in each region of this tube.



- (a) At stage 1, the pollen grain contains the haploid generative nucleus.  
Explain what is meant by the term **haploid nucleus**.

(2)

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- (b) Describe the changes in the pH of the pollen tube shown in the diagram.

(2)

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Suggest what happens to the amino acids from when they are absorbed into the cytoplasm until they are secreted as enzymes into the style.

This image shows a blank sheet of white paper with horizontal dashed lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting practice. There are no other markings, text, or illustrations on the page.



(d) During stage 3, the generative nucleus divides to form two male nuclei and the pollen tube fuses with the embryo sac.

Describe what happens to each of these two male nuclei.

(2)

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**(Total for Question 5 = 11 marks)**

