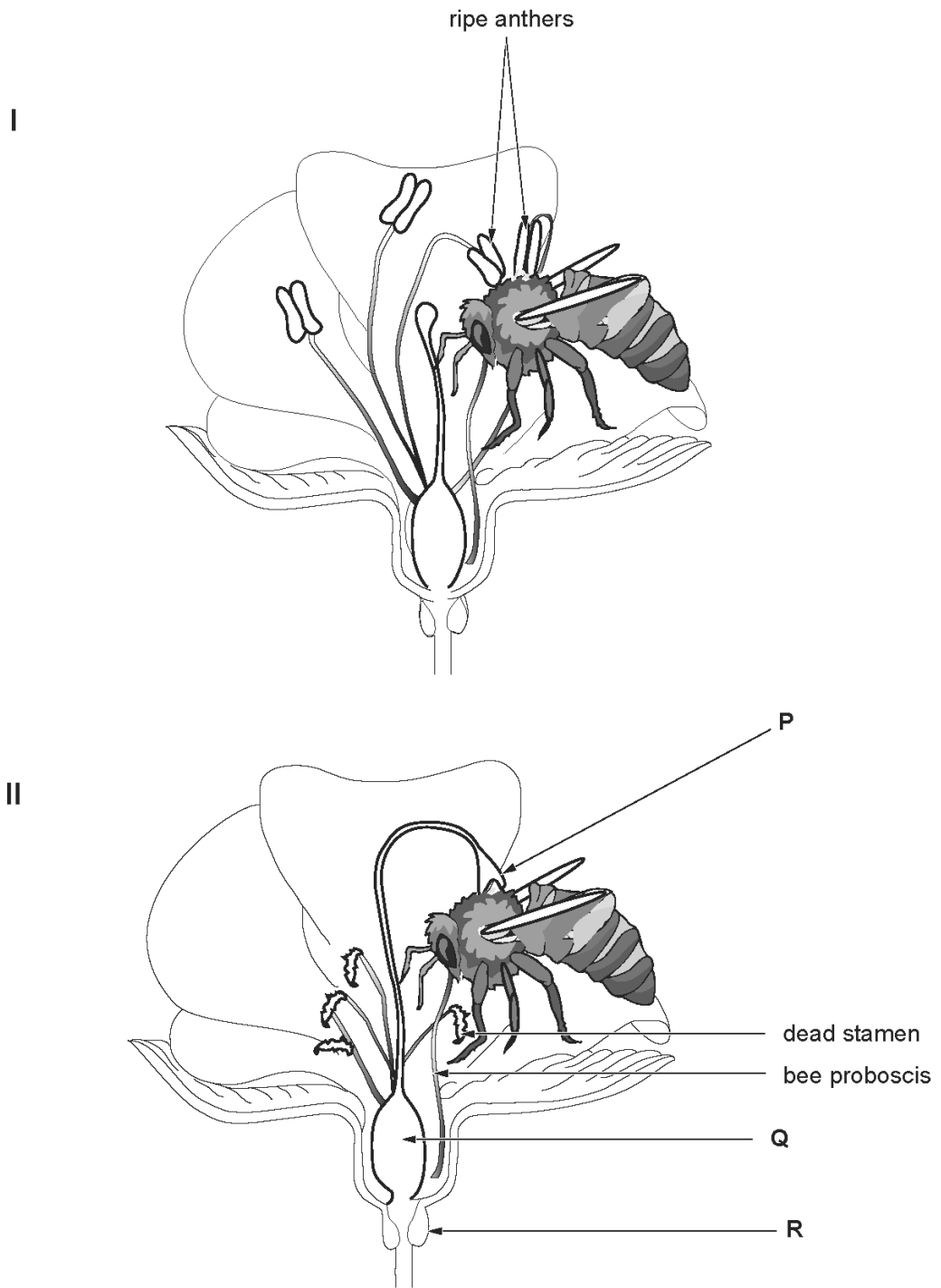


WJEC (Eduqas) Biology A-level
Topic 2.4: Sexual Reproduction
in Plants
Questions by Topic

1.

The diagrams below show pollination in an insect-pollinated flower.



(a) (i) Name parts: [1]

P

Q

(ii) Name the substance produced by structure R. [1]

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(iii) What is the function of this substance? [1]

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(b) Describe what happens to the pollen in diagrams I and II. [2]

I.

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II.

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(c) Using the diagrams opposite, explain how these flowers are adapted to ensure that;

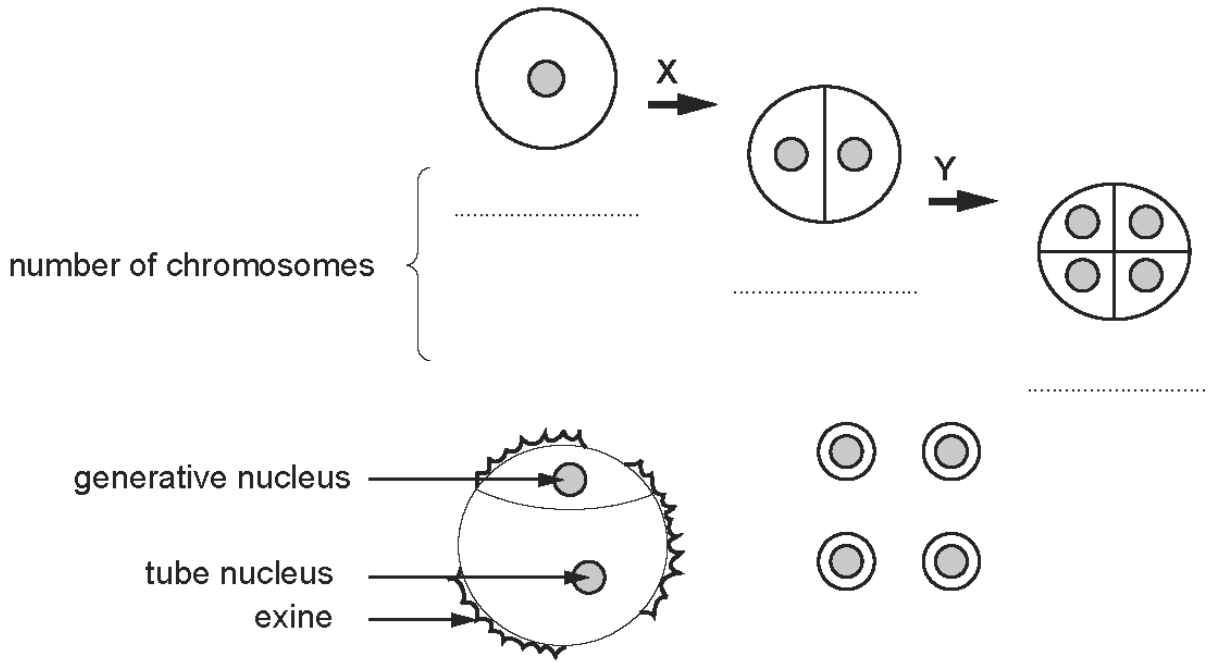
(i) there is effective pollen transfer between two flowers of the same species, [1]

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(ii) self-pollination is avoided. [1]

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(d) The diagrams below show the formation of pollen grains.



(i) In which floral part does this take place? [1]

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(ii) Name the cell process represented by arrows X and Y. [1]

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(iii) The diploid number of this species is 10, underneath each structure indicated above, write the number of chromosomes in each nucleus. [1]

(iv) Give the functions of:

I. the generative (male) nucleus; [1]

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II. the tube nucleus. [1]

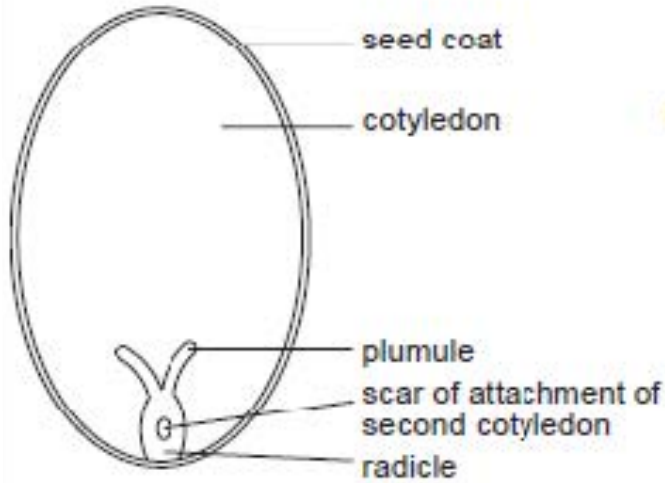
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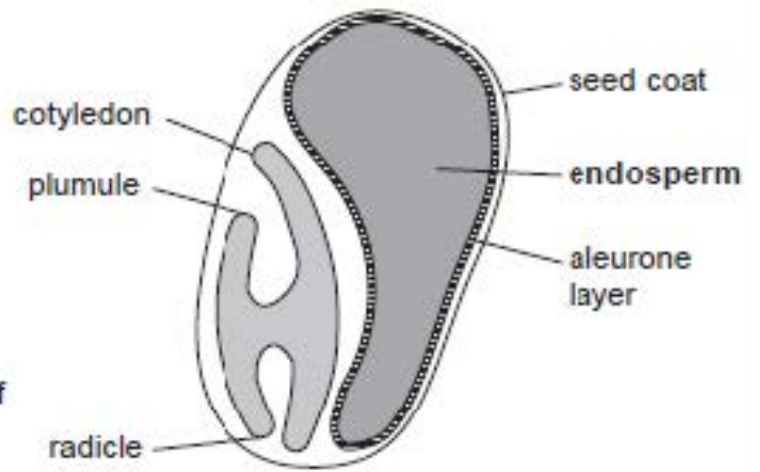
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2.

The diagrams below show a peanut seed (*Arachis hypogaea*) and a barley seed (*Hordeum vulgare*).



Peanut seed (*Arachis hypogaea*)



Barley seed (*Hordeum vulgare*)

State and explain the conditions required for germination to take place. Describe the germination of the peanut and barley seeds shown above. [9 QER]

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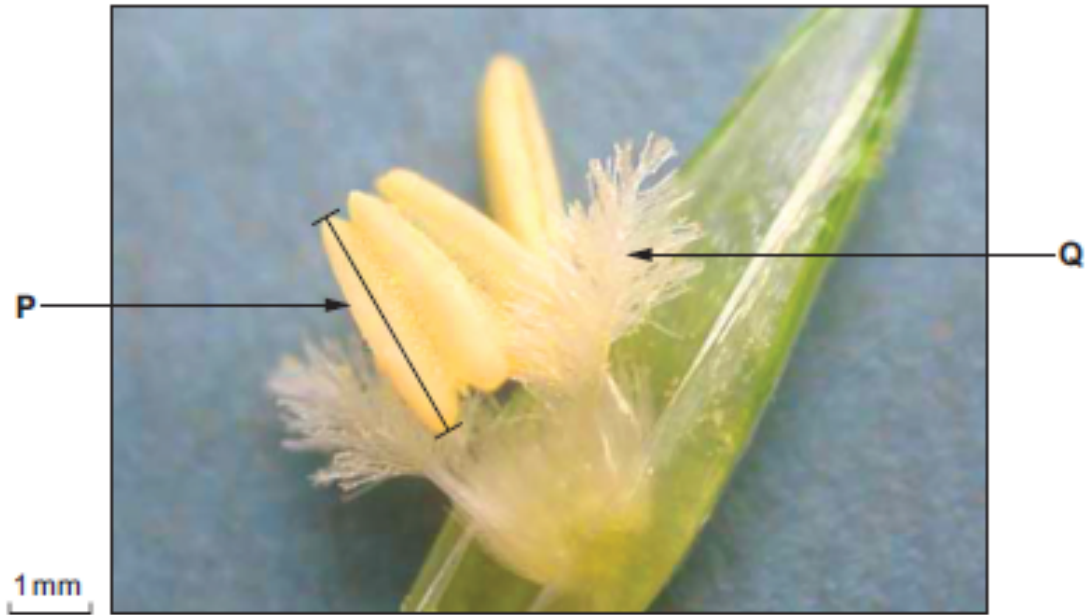
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3. (a) The photograph below shows a flower of the wheat plant, *Triticum aestivum*.



- (i) Name the parts labelled P and Q. [1]

P

Q

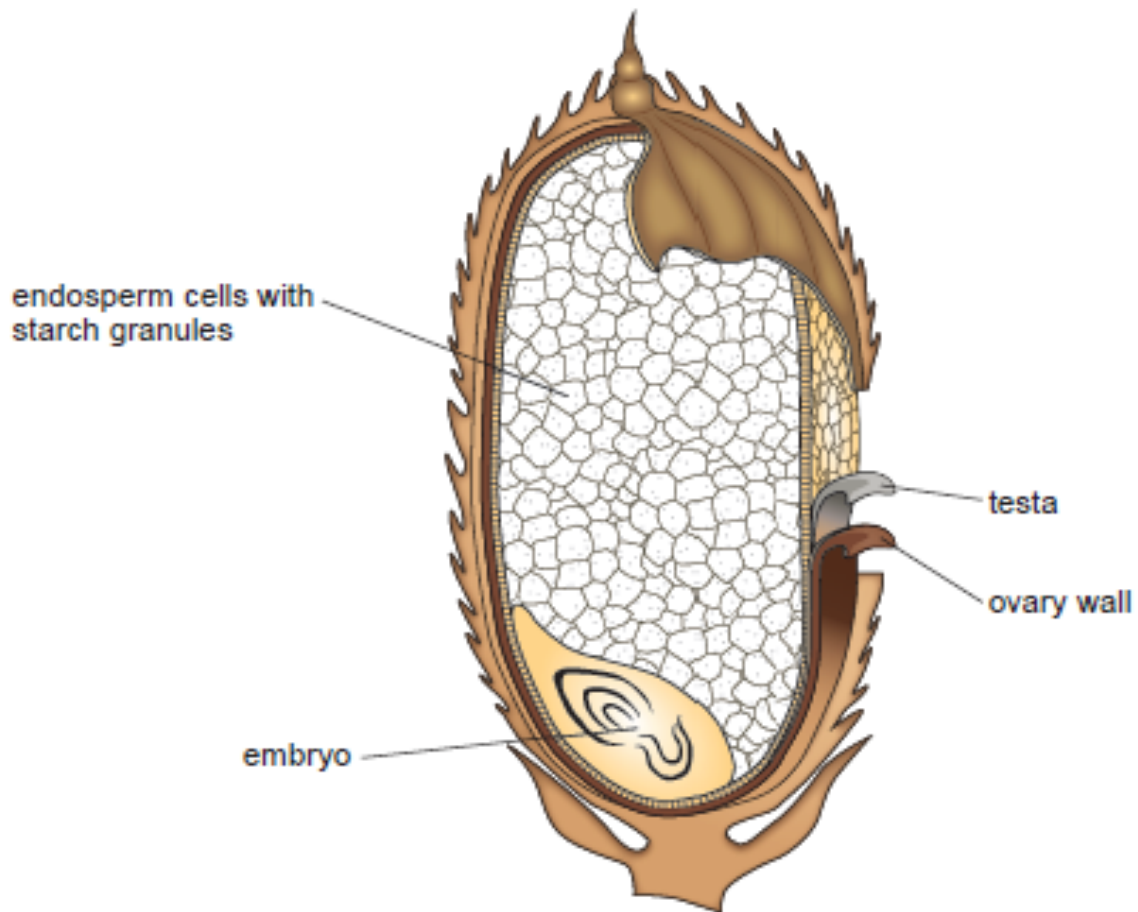
- (ii) Calculate the actual length of structure P. [2]

Size = mm

- (iii) Describe two features of the flower shown in the photograph which suggest it is wind pollinated. [1]

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(b) The diagram below shows a wheat grain.



(i) Use information shown in the diagram to explain why the grain is more correctly described as a fruit rather than a seed. [2]

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(ii) Explain why the events taking place in the embryo sac of a wheat flower are described as a double fertilisation. [2]

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4. (a) Complete the table to show **four** differences between insect and wind pollinated plants. [4]

<i>Insect pollinated</i>	<i>Wind pollinated</i>

- (b) Some flowers can self pollinate. What is the main **disadvantage** of self pollination? [1]

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- (c) State how the production of pollen grains has enabled flowering plants to adapt to terrestrial life. [3]

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- (d) On the following diagram of a broad bean pod (drawn in section), show which parts of the flower have developed into the labelled structures. [4]

(b) Some flowers can self pollinate. What is the main **disadvantage** of self pollination? [1]

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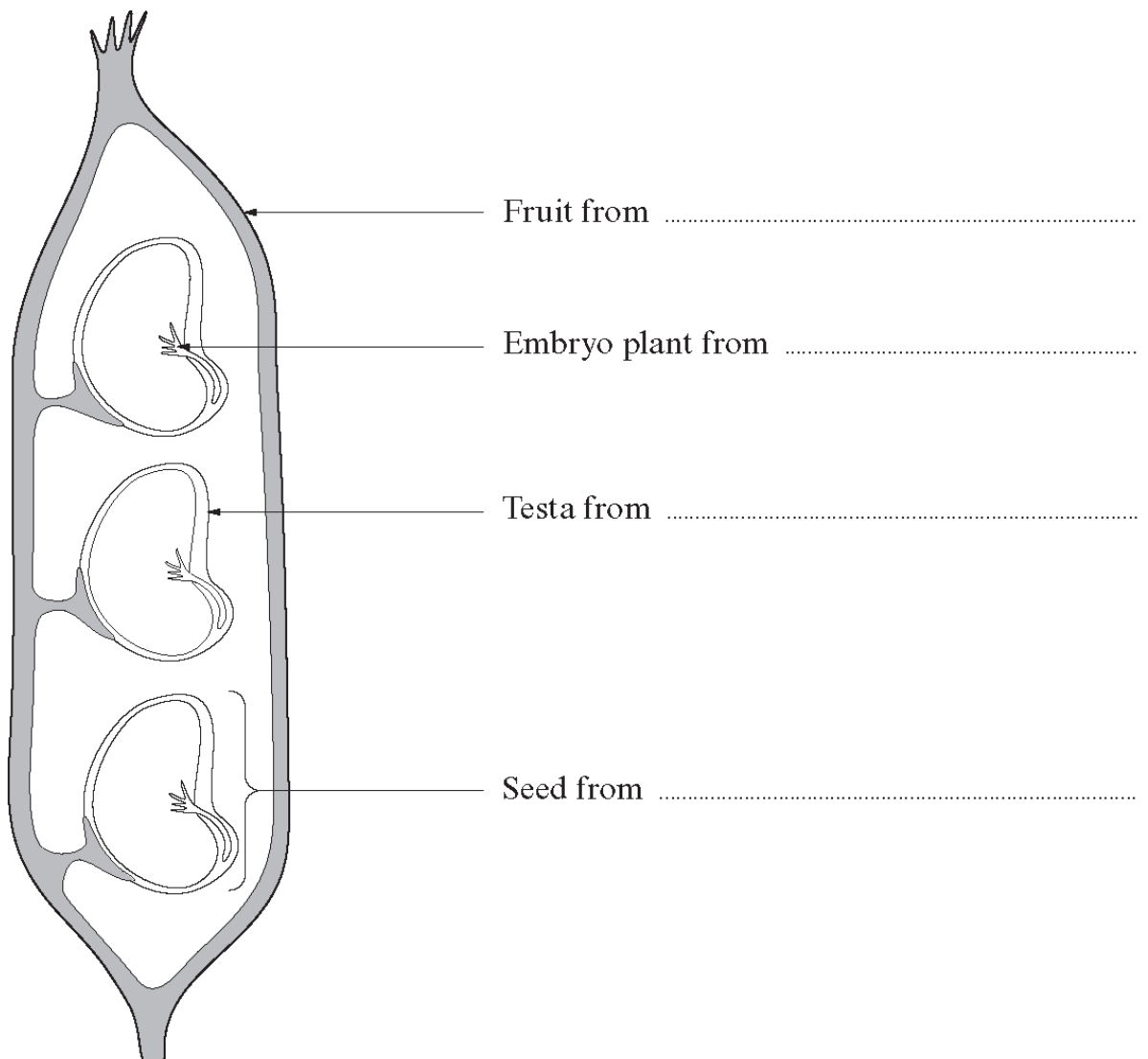
(c) State how the production of pollen grains has enabled flowering plants to adapt to terrestrial life. [3]

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(d) On the following diagram of a broad bean pod (drawn in section), show which parts of the flower have developed into the labelled structures. [4]



(Total 12 marks)