

8 Various internal and external factors can affect the phenotype of humans.

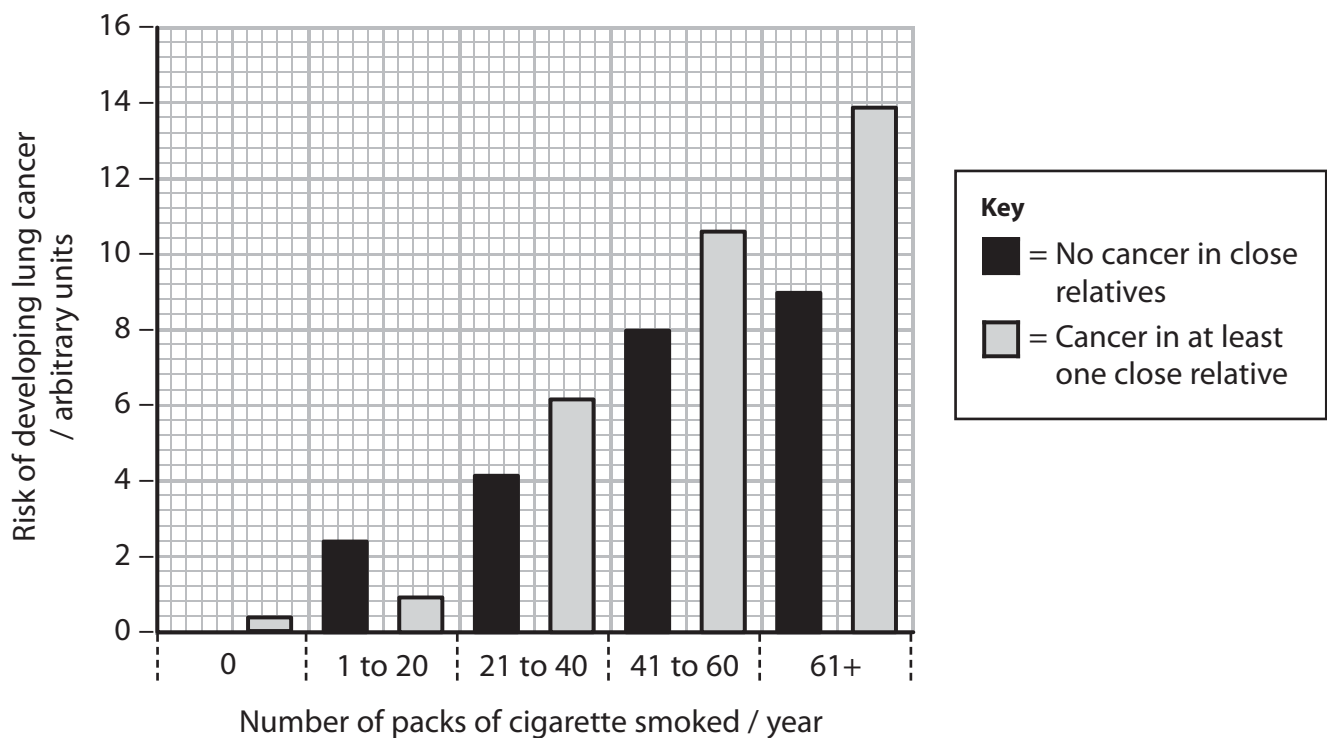
(a) Explain what is meant by the term **phenotype**.

(2)

(b) A survey was carried out to investigate the factors affecting the risk of developing lung cancer. In this survey, people were asked how many packs of cigarettes they smoked per year. They were also asked whether a close relative (a brother, sister or parent) had developed some form of cancer.

The results of the survey are shown in the graph below.

A risk of developing lung cancer of 0 arbitrary units means that there is no increased risk.



- (i) Identify the control group in this survey and suggest why they were included. (2)

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- (ii) State the phenotype being investigated. (1)

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- (iii) Describe the effect of smoking on the increased risk of developing lung cancer, for the people who had close relatives who developed cancer. (2)

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- (iv) Use evidence from the graph to support the suggestion that genetic factors may influence the risk of developing lung cancer. (2)

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- (v) Give **one** piece of evidence from the graph which suggests that genetic factors may **not** influence the risk of developing lung cancer.

(1)

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- (vi) Give **one** piece of evidence from the graph which suggests that external factors may influence the risk of developing lung cancer.

(1)

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(Total for Question 8 = 11 marks)

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**TOTAL FOR PAPER = 80 MARKS**

