

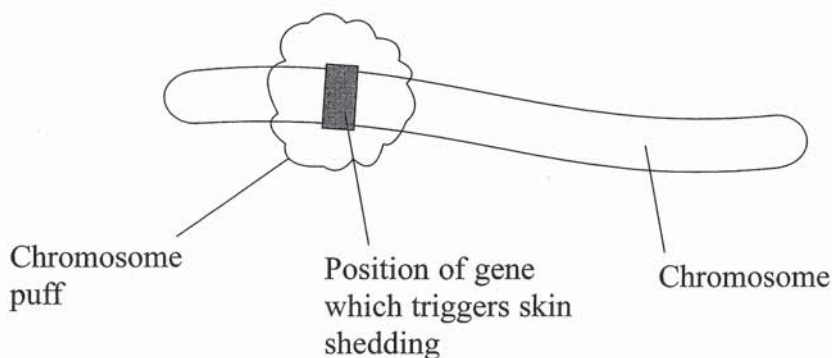
4. (a) (i) Give the biological term which means **switching on a gene**.

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(1)

- (ii) State **two** different types of mechanism by which genes may be switched on.

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(2)

- (b) Fruit flies have some cells with very large chromosomes which make it possible to see what happens when a gene is switched on. A chromosome puff forms where a gene is being transcribed.



- (i) Suggest which substance, in addition to DNA, makes up the chromosome puff.

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(1)

- (ii) When a fruit fly produces a hormone called ecdysone, chromosome puffs form around a particular gene. Shortly afterwards, the fruit fly sheds its skin.

Suggest how ecdysone stimulates the fruit fly to shed its skin.

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(2)



- (c) The effects of temperature are important in the lives of reptiles such as crocodiles. Suggest how an increase in average environmental temperature from 33 °C to 38 °C in a particular area might affect the size of the local crocodile population.

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(2)

Q4

(Total 8 marks)

