

##

Read the passage.

**Designer Denim Genes**

USA scientists have successfully used genetic engineering to insert genes for blue pigment into cotton plants. Their aim is to get cotton plants which produce blue cotton so that denims can be manufactured without the need for dyeing. The scientists have also inserted genes that prevent cotton fibres twisting, with the aim of producing drip dry shirts made from natural fibres. Other cotton plants are being genetically engineered to produce their own insecticides. When they have perfected these new types of cotton plants, the scientists will use cloning techniques to produce large numbers of them.

- (i) Name the substance in cells which carries genetic information.

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(1)

- (ii) Explain how molecules of this substance control characteristics such as blue colour in cotton plants.

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(3)

(Total 4 marks)

**E1.** In this question, most candidates failed to realise that the question was about DNA coding controlling the order in which amino acids are assembled into proteins. Where candidates did realise this, they frequently stated that the code was in the sequence of amino acids in DNA, or that DNA controlled the synthesis of amino acids.

