



## CHAPTER 3: HEREDITY AND VARIATION

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Refer to Figure 3.22 in the NEXUS Science SPM

- 1 (a) State **one** feature which shows the foetuses shown in the diagram are non-identical twins.

\_\_\_\_\_ [1 mark]

- (b) The non-identical twins have different sets of chromosomes and genes. Explain this.

\_\_\_\_\_ [1 mark]

- (c) The placenta contains blood vessels from the mother and the foetuses. State **two** advantages of this arrangement.

1. \_\_\_\_\_  
2. \_\_\_\_\_

[2 marks]

- (d) State the possible sex for non-identical twins.

\_\_\_\_\_ [1 mark]

- 2 Chee Wah and Chee Meng are non-identical male twins. How were they formed?

- A** Two ova were fertilized by two sperms bearing Y chromosomes.  
**B** Two ova were fertilized by two sperms bearing X chromosomes.  
**C** Two ova were fertilized by the same sperms.  
**D** Both twins originated from the same zygote.

It's been reported in March 2007 that doctors in Washington, U.S.A. have identified for the first time a pair of 'semi-identical' twins, produced by two sperm cells fused with one egg cell.