

## 2.2 PROGRAMMING TECHNIQUES · 2.2.1(F)

**Object-oriented programming techniques**

Original practice questions · 30 marks · about 45 minutes · spec 2.2.1(f)

**Instructions.** Answer all questions. Marks are shown in brackets [ ]. Write code in OCR pseudocode or a high-level OOP language of your choice. The extended question assesses quality of written communication.

**1** Total: 6 marks

(a) State the difference between a *class* and an *object*. [2]

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(b) State what is meant by *encapsulation*. [2]

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(c) State what is meant by *instantiation*. [1]

(d) State the purpose of a *constructor*. [1]

**2** Total: 6 marks

A Student class stores a private name and a private grade.

(a) Write the class declaration including the two private attributes and a constructor that sets them. [4]

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(b) Write a `getName ( )` method for the class. [2]

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(a) Describe what is meant by *inheritance*, with an example. [2]

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(b) Explain how making the `grade` attribute private improves the program. [2]

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(c) Explain what is meant by *polymorphism*. [2]

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A team is building a large program to manage a zoo's animals, enclosures and staff.

**[12]**

**END OF QUESTIONS**