

1.2 SOFTWARE & SOFTWARE DEVELOPMENT · 1.2.4 · FULL A-LEVEL

Object-oriented programming concepts

Original practice questions · 38 marks · about 50 minutes · spec 1.2.4(e) · answer in OCR pseudocode

Instructions. Answer all questions. Write code in OCR Exam Reference Language (pseudocode). The number of marks is shown in brackets [].

1 Total: 5 marks

(a) Describe what is meant by a *class*. [2]

(b) State the meaning of the terms *object*, *method* and *attribute*. [3]

A cinema's booking system defines the class below.

```
class Ticket
  private price
  private ticketType

  public procedure new(givenPrice, givenType)
    price = givenPrice
    ticketType = givenType
  endprocedure

  public function getPrice()
    return price
  endfunction
endclass
```

- (a) Identify one attribute in the Ticket class. [1]
-
- (b) Identify one method in the Ticket class. [1]
-
- (c) Write a line of code to create an object `adult` of type `Ticket` costing 12.50 with the type "Adult". [2]
-
-
- (d) State the keyword that makes an attribute accessible only from inside its own class. [1]
-

This question is about encapsulation.

- (a) Describe what is meant by *encapsulation*. [2]
-
-
-
- (b) Explain one advantage of encapsulation. [2]
-
-
-
- (c) Explain how encapsulation could be used to stop a ticket's price being set to a negative value. [2]
-
-
-

4

Total: 5 marks

Write a class definition for `Dog` with two **private** attributes (name and age), a constructor that sets both, and a **get** method for name, so that the class is fully encapsulated. [5]

5

Total: 5 marks

This question is about inheritance.

(a) Describe what is meant by *inheritance*. [3]

(b) Write the first line of a class `Puppy` that inherits from the class `Dog`. [2]

Discuss the advantages of object-oriented programming over procedural programming for this game, and justify which approach the company should use. [12]

Shuttle Learning · OCR A-Level CS (H446) · 1.2.4 · Practice questions