



DESIGNING AND DEVELOPING OBJECT-ORIENTED COMPUTER PROGRAMS

10th MARCH 2013

Examination Paper

Answer ALL questions.

Clearly cross out surplus answers.

Time: 2 hours and 30 minutes

Any reference material brought into the examination room must be handed to the invigilator before the start of the examination.

CANDIDATES MUST ATTEMPT ALL QUESTIONS
--

QUESTION 1**Marks**

- a) Give the Java code needed to create a button with the text “Press me” and to have that button flash up a message box saying “Thanks” when it is clicked. **8**
- b) Explain what is meant by the term **method**. **2**

Total 10 Marks**QUESTION 2**

- a) Java is an **event driven language**. Explain what this means, and identify TWO (2) of the events you have made use of during the module. **6**
- b) Explain the role of an **event listener**, and provide the Java code needed to differentiate between sources of an event. **4**

Total 10 Marks**QUESTION 3**

- a) Define the term **instantiation**, and explain its use in reference to classes and objects. **4**
- b) Explain the term **data centric** and give TWO (2) benefits of developing in a data centric language. **6**

Total 10 Marks**QUESTION 4**

- a) One of the key tools in object-oriented programming is inheritance. Explain the role that inheritance plays in the development of OO programs, and give an example of where you have used it. **6**
- b) State what is meant by the **sub** and **super** classes in an inheritance relationship. **4**

Total 10 Marks**QUESTION 5**

- a) Provide the code for a while loop that generates random numbers between one and one hundred. The while loop should iterate until the number generated is 100. **6**
- b) Outline the role of the **break** statement, and give TWO (2) reasons as to why its use should be moderated. **4**

Total 10 Marks

QUESTION 6

Marks

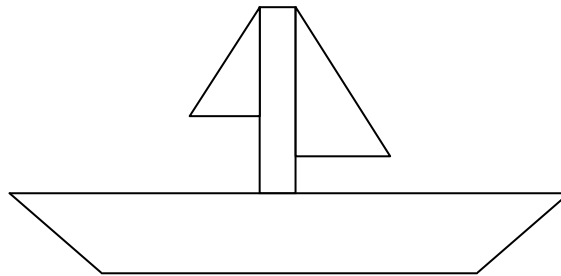
a) Java is a **strongly typed language**. Explain this term, and explain its relevance in relation to the technique known as **casting**. 6

b) Outline the role of the **paint** method in a swing based Java program. 4

Total 10 Marks

QUESTION 7

a) Provide the Java code required to create some version of the following graphic. 8



b) Explain what is meant by the term **exception**. 2

Total 10 Marks

QUESTION 8

a) Define the term **constructor method** and explain its role in relation to **method overloading**. 6
Give an example of where you have used this technique.

b) Explain the relationship between a radio button and a radio button group. Give a code example of this relationship at work. 4

Total 10 Marks

QUESTION 9

a) Two techniques to deal with incorrect user input are **data validation** and **exception handling**. 6
Explain the differences between these two terms and give an example of when each may be preferred over the other.

b) Explain the term **visibility** and explain what the THREE (3) main visibility modifiers do. 4

Total 10 Marks

QUESTION 10

- a) Outline what is meant by an **accessor method** and give a code example of the accessor methods that would go with a String variable called **output**. 6
- b) Explain what an **Arraylist** is and how it differs from a standard array. Give an example of a scenario in which the use of an Arraylist would be preferable to a standard array. 4

Total 10 Marks

END OF PAPER