NCC EDUCATION

INTERNATIONAL DIPLOMA IN COMPUTER STUDIES

PROGRAMMING METHODS

MARCH 2009 – LOCAL EXAMINATION

SECTION A
Answer all questions from this section.

SECTION B
Answer any <u>two</u> questions from this section.

Time: 2 hours

Clearly cross out surplus answers.
Failure to do this in Section B will result in only the first two answers being marked.

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

SECTION A
ANSWER <u>ALL</u> QUESTIONS FROM THIS SECTION

Marks

QUESTION 1
Explain the difference between attributes and operations.   **4**

QUESTION 2
State TWO (2) reasons for using procedures/functions.   **4**

QUESTION 3   **4**
Define the difference between local variables and global variables.

QUESTION 4
State FOUR (4) causes of bugs in software.   **4**

QUESTION 5
Explain the difference between desk checking and dry running.   **4**

QUESTION 6
Explain TWO (2) features of a client-server system.   **4**

QUESTION 7
List FOUR (4) advantages of visual programming.   **4**

QUESTION 8
State FOUR (4) characteristics of a good program specification.   **4**

QUESTION 9
Based on the following table, identify the data type for variables Name, Gender, Interest rate and Age   **4**
respectively.

Name	Gender	Interest rate	Age
Peter Henry	'M'	0.4	32
Mary Shin	'F'	0.2	45

QUESTION 10
Define the difference between an abstract class and a concrete class.   **4**

Total 40 Marks

SECTION B
ANSWER ANY <u>TWO</u> QUESTIONS

QUESTION 1   **Marks**

a)   Clearly explain the FIVE (5) levels of testing.   **10**

b)   Explain the differences between:
    i)   the role of a programmer and a system analyst   **4**

    ii)   Inheritance and Polymorphism   **4**

c)   Write pseudo-code to solve the following problem: **12**

Your system must allow the user to input TEN (10) customers' names, invoice amount and date. If today's date minus the invoice date is greater than 30 days, the system must prompt a message to inform the user that the invoice is due. The message must consist of the customer's name and the amount due.
Note: You can define the date and todayDate as DATE data type

Total 30 Marks

QUESTION 2   **Marks**

a)   State FOUR (4) advantages and FOUR (4) disadvantages of using UML.   **8**

b)   List FOUR (4) types of use case relationship.   **4**

c)   Design an ATM (cash machine) withdrawal process for a customer to withdraw money from an ATM machine using use case diagrams.   **10**

d)   List and explain FOUR (4) duties of the Database Administrator.   **8**

Total 30 Marks

QUESTION 3   **Marks**

a)   Provide a table showing how the following values would be sorted into ascending order using a *selection sort*:   **5**
       23   13   4   32   2   16

b)   Explain TWO (2) advantages of a report generator.   **4**

c)   Write the Binary Search algorithm to search for a record in an array based on the name field.   **10**
    Note: assume there are 10 records in an array

d)   Describe the FOUR (4) development features of fourth generation languages.   **8**

e)   List the THREE (3) models for organising data in a database.   **3**

Total 30 Marks

END OF PAPER