NCC EDUCATION

INTERNATIONAL DIPLOMA
IN
COMPUTER STUDIES

PROGRAMMING METHODS

JUNE 2009 – LOCAL EXAMINATION

SECTION A
Answer all questions in this section.

SECTION B
Answer any <u>two</u> questions in 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.

Marks

QUESTION 1
Write a FOR loop statement to display the numbers below.   **4**
      5   10   15   20   25

QUESTION 2
List FOUR (4) attributes of good documentation.   **4**

QUESTION 3   **4**
Explain the difference between a *field* and a *record*.

QUESTION 4
What is the difference between a *data manipulation language* and a *data description language*?   **4**

QUESTION 5
What are Object-oriented languages?   **4**

QUESTION 6
Define the difference between *public* and *private* methods.   **4**

QUESTION 7
Use an example to explain the difference between the *integer* and *float* variable types.   **4**

QUESTION 8
Define the role of each of the following:
- a *programmer*   **2**
- a *system analyst*   **2**

QUESTION 9
State the difference between a *queue* and a *stack*.   **4**

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

Total 40 Marks

QUESTION 1   **Marks**

a) List and explain the FIVE (5) stages of the Software Development Lifecycle.   **10**

b) Explain the differences between:
   i) the Waterfall and V-Shaped lifecycle models   **4**

   ii) Inheritance and Polymorphism   **4**

c) Draw a flowchart to solve the following problem: **8**

Your system must allow the user to input a student's fee amount and payment date. If the payment date is later than the payment due date set by the system, the student is required to pay an extra 10%. If the payment is on time the student has to pay the exact amount only.

d) Explain TWO (2) reasons why robust and reliable software is needed.   **4**

Total 30 Marks

QUESTION 2   **Marks**

a) Name and briefly explain FIVE (5) types of UML diagram.   **10**

b) Draw a class diagram (without attributes and operations) to show the relationships involved in the following specification: **12**

A university limits the amount of books that may be borrowed by lecturers and students within a semester. A maximum of 5 books may be borrowed by full time lecturers in a semester and 3 books by part time lecturers. Students may only borrow 2 books in a semester.

c) State EIGHT (8) reasons for software bugs.   **8**

Total 30 Marks

QUESTIONS CONTINUE ON NEXT PAGE

QUESTION 3   **Marks**

a)   Explain THREE (3) advantages of Visual Programming Languages.   **6**

b)   Briefly explain THREE (3) limitations of File Management Systems.   **6**

c)   Briefly explain the following programming constructs with the aid of Jackson Structured
         Programming (JSP) diagrams:

     i)   Sequence   **3**

     ii)   Selection   **3**

     iii)   Iteration   **3**

d)   List SIX (6) key questions to ask when evaluating languages for use in a project.   **6**

e)   Give THREE (3) examples of Third Generation Languages.   **3**

Total 30 Marks

END OF PAPER