THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

DIPLOMA IN INFORMATION COMMUNICATION (DICT)

DIPLOMA IN INFORMATION TECHNOLOGY (DIT)

END OF SEMESTER EXAMINATION

APRIL/MAY 2010 SERIES

STRUCTURED PROGRAMMING (PASCAL) (Module I)

TIME: 2 HOURS

Instructions to Candidates

Attempt any **THREE** Questions
ALL Questions Carry Equal Marks

Question ONE COMPULSORY

(a). (i). Explain the term Computer Program. **(2 Marks)**

(ii). Explain machine programming Language. **(4 Marks)**

(iii). State any **FOUR** disadvantages of machine programming language. **(4 Marks)**

(b). Explain any **FOUR** features of fourth generation languages. (**8 Marks)**

Question TWO

(a). Explain the **FIVE** data types in pascal programming language. **(10 Marks)**

(b). Write a pascal program to calculate the value of x in the quadratic equation.

$ax^2 + bx + c = 0$

Where

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Implement using the following conditions.

If $b^2 - 4ac = Ø$ then Equation has two equal values.
If $b^2 - 4ac > Ø$ then Equation has two distinct values.
If $b^2 - 4ac < Ø$ then Equation has no roots.

(10 Marks)

(c). Design a simple program to enable a user to input **THREE** intergers. **(3 Marks)**

Question THREE

(a). State any **TWO** design tools in computer programming. **(2 Marks)**

(b). Draw a program flowchart to calculate the sum of twenty integer values. **(7 Marks)**

(c). Implent Q3(b) above using pascal programming language. **(7 Marks)**

(d). Write a pascal program to read three integer values compares them and display the largest. **(7 Marks)**

Question FOUR

(a). Explain the term structured programming. **(2 Marks)**

(b). Explain the advantages of structured programming. **(10 Marks)**

(c). Explain any **TWO** differences between procedures and functions in pascal programming. **(4 Marks)**

(d). Develop a pascal procedure to calculate sum and average of ten values. **(7 Marks)**

Question FIVE

(a). Explain the **THREE** control structures in pascal programming giving examples. **(12 Marks)**

(b). Write a pascal program to calculate the area of circumference of a circle, given the following:-

Area = πr^2
Circumference = $2\pi r$

(7 Marks)

(c). State any **FOUR** rules of creating variables in pascal programming. **(4 Marks)**