TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY
(DICT 14M)

ECS 2104: STRUCTURED PROGRAMMING

END OF SEMESTER EXAMINATION
SERIES: DECEMBER 2014
TIME: 2 HOURS

Instructions to Candidates:
You should have the following for this examination
- *Answer Booklet*

This paper consists of **FIVE** questions. Attempt question **ONE (Compulsory)** and any other **TWO** questions
Maximum marks for each part of a question are as shown
This paper consists of **THREE** printed pages

Question One (Compulsory)

a) Define the following programming terms:
   (i) Modular programming
   (ii) Algorithm
   (iii) Pre-processor directories   **(6 marks)**

b) Explain the following C programming statement:
   gets ( ):   **(2 marks)**

c) Explain the following C programming commands for formatting the inputs.
   (i) % c
   (ii) % i
   (iii) % f
   (iv) % s   **(8 marks)**

d) State the meaning of the following symbols in C:
   (i) &&
   (ii) ||
   (iii) ++
   (iv) = =   **(4 marks)**

Question Two

a) Explain the if-else-if ladder selection control structure in C programming.   **(2 marks)**

b) Develop a program of water board that changes the following rates to domestic users to discourage large consumption of water. For the first 200 cubit units, 50 per cubit unit Beyond 400 cubit units – 60 per cubit unit. if the total cost is more than kshs 500.00 then an additional surcharge of 15% is added..   **(12 marks)**

c) State any SIX features of C programming.   **(6 marks)**

Question Three

a) Explain the term looping as used in C programming.   **(2 marks)**

b) The class teacher of Form 3W in a secondary school requested a programmer to design for her a simple program that would help her do the following:
   • Enter the names of students and marks obtained in 8 subjects – Mathematics, English, Kiswahili, Biology, Chemistry, Business Studies, Computer Studies and History.
   • After entering each subject mark, the program should calculate the total and average marks for each student
   • Depending on the average mark obtained the program should assign grade as follows:
       - Between 80 and 100 – A
       - Between 70 and 79 – B
       - Between 60 and 69 – C
       - Between 50 and 59 – D
       - Below 50 – E

- The program should then display each student's name total marks and the average grade.
  (14 marks)

c) Describe any TWO types of programming errors. **(4 marks)**

Question Four

a) Explain the advantages of structured programming in C language. **(10 marks)**

b) Using a function and a case selection statements write a program to calculate the area of a circle rectangle and cylinder. **(10 marks)**

Question Five

a) Define the term Array as used in programming. **(2 marks)**

b) Explain the data structure operation as used in computer programming. **(10 marks)**

c) Create an array called STUDENT having 10 scores. The array should compare the Ten elements and then display the largest. **(8 marks)**