TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATIONS FOR DEGREE IN:
BACHELOR OF SCIENCE IN INFORMATION COMMUNICAITON TECHNOLOGY
(BSIT 14S)

BIT 2123: STRUCTURED PROGRAMMING

END OF SEMESTER EXAMINATION
SERIES: APRIL 2015
TIME: 2 HOURS

<u>**Instructions to Candidates:**</u>
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 **TWO** printed pages

Question One (Compulsory)

a) Define the following terms:
    (i) List
    (ii) Data structure
    (iii) Pointers   **(6 marks)**

b) Write a segment of code that declares: **(4 marks)**
    (i) Student name
    (ii) Admission number
    (iii) Age
    (iv) Course
    (v) Admission date

c) Differentiate between structured programming and unstructured programming   **(4 marks)**

d) Write a program that asks for user to input random numbers from 50 to 100 then calculate the sum and average   **(8 marks)**

e) Differentiate between:

(i) Pass-by-value and pass-by reference
(ii) Function call and function prototype

Question Two

a) Define the term "function" as used in programming and briefly discuss different types of function.
(6 marks)
b) Using a function and a case selection statements write a program to calculate the area of a circle rectangle and cylinder. **(14 marks)**

Question Three

a) A communication company charges the following rates to its customers:
For the first 5 mins – sh 10
Beyond 5 min units – shs 15
If the total cost is more than kshs 50.00 than an additional discount of 15% is given in form of task time. Develop a program that calculates the communication service **(12 mars)**

b) Documentation is an essential practice in programming, list FIVE benefits of documentation to programmers. **(5 marks)**

c) List THREE factors to consider when developing user program interface **(3 marks)**

Question Four

a) List FOUR characteristics of arrays **(4 marks)**

b) Differentiate between a list and an array **(4 marks)**

c) Develop a program using arrays to calculate score and average of ten students for three units, the program should be able to grade the students as follows:
Less than 40 – fail
40 to 79 – Pass
60 to 79 – Credit
80 to 100 Distinction **(12 marks)**

Question Five

a) Write expressions to represent the following:
    (i) P is a function whose argument is a pointer to an array of characters and which returns a pointer to an integer
    (ii) P is a function whose argument is a pointer to character and which returns a pointer to an array of ten integers **(6 marks)**

b) Explain the following terms:
    (i) Struc members
    (ii) Unary
    (iii) Object
    (iv) Scope and life of variable **(8 marks)**

c) Develop a program that input three members and evaluate the maximum and minimum number among the three. **(6 marks)**