



TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY (DICT 14S-EV)

ECS 2104: STRUCTURED PROGRAMMING

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: AUGUST 2016

TIME: 2 HOURS

DATE: 30AUG2016

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions.

Question One (Compulsory)

- a) Briefly explain the meaning of the following in C:
- (i) Scan f ()
 - (ii) Print f ()
 - (iii) Main ()
 - (iv) Include < stdio.h>
- (8 marks)**
- b) Define the following and give examples of each:
- (i) Variable
 - (ii) Pre-processor directive
 - (iii) Function
- (6 marks)**
- c) Describe the **THREE** main categories of **CONTROL** structures used in C
- (6 marks)**

Question Two

- a) Explain the following as used in programming:
- (i) Portability
 - (ii) Module re-use
- (4 marks)**
- b) Explain any **THREE** types of errors in computer programming
- (6 marks)**
- c) Write a C program to calculate the value X in quadratic equation given the following:
- $$ax^2 + bx + c = 0$$
- $$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$
- Determinant = $b^2 - 4ac$
If determinant > 0
- $$x_1 = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$$
- $$x_2 = \frac{-b - \sqrt{b^2 - 4ac}}{2a}$$
- if determinant = 0
- $$x_1 = x_2 = -b/2a$$
- If determinant < 0
"equation has no roots
- (10 marks)**

Question Three

- a) Explain the term Data structure as used in programming
- (2 marks)**
- b) Explain any **TWO** types of Data structures in computer programming
- (4 marks)**

- c) Develop a C program to read Ten values, compare them and display the smallest (10 marks)
- d) Explain the difference between compiler and interpreter (4 marks)

Question Four

- a) Write a program that uses the FOR loop to sum successive numbers between 1 and 10 (10 marks)
- b) Write a program that uses WHILE LOOP to calculate the average of 6 days wages of casual employees. The program should request the user for the individual day's wages before performing any calculations. (10 marks)

Question Five

- a) Explain the term a string as used in programming (2 marks)
- b) Explain the following string manipulation functions:
(i) Strlen ()
(ii) strcpy ()
(iii) strn cpy ()
(iv) str cat () (8 marks)
- c) Explain the term record as used in programming (2 marks)
- d) Explain the following record structure:
struct emp_record
{
char name (40)
int age;
float basic pay;
}; (6 marks)
- e) Explain the difference between a file and a file and a record structure (2 marks)