



TECHNICAL UNIVERSITY OF MOMBASA
INSTITUTE OF COMPUTING AND INFORMATICS
DEPARTMENT OF COMPUTER SCIENCE & INFORMATION
TECHNOLOGY

UNIVERSITY EXAMINATION FOR:

DICT JAN 2018

ECS 2104:

STRUCTURED PROGRAMMING

END OF SEMESTER EXAMINATION

SERIES:AUGUST2019

TIME:2HOURS

DATE:Pick DateSelect MonthPick Year

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt any **THREE** questions.

Do not write on the question paper.

QUESTION ONE

a). Explain any three features of C programming language.

[6 Marks]

b). Explain the following **Derived(User-defined) data types** in C programming language.

(i) Pointers

(ii) Arrays

(iii) structures

(iv) Unions

(8 Marks)

[4 Marks]

c). Explain the function of the following library files.

(i) **#include <stdio.h>**

(ii) **#include <conio.h>**

(iii) **#include <math.h>**

[6 Marks]

QUESTION TWO

a). Explain any three control structures in C Programming language and provide an example where appropriate

[10 Marks]

b). Write a C program to read basic salary and sales made by employees. The program should calculate the commission based on the table below. It should output the commission and the netsalary

$\text{Netsalary} = \text{Basic salary} + \text{commission}$

SALES	COMMISSION(% OF SALES)
0 - 1000	0%
1000 – 20000	8%
20000 – 30000	12%
OVER 30000	17%

(10 Marks)

QUESTION THREE

a).(i) Explain the term looping control structure as used in C programming.

(2 Marks)

(ii) With an example explain any looping control structures

(3 marks)

(iii) Write a C program to that calculates the squares and cubes of the numbers from 0 to 10 as shown below. Use a loop.

number	square	cube
0	0	0
1	1	1
2	4	8
3	9	27
4	16	64
5	25	125
6	36	216
7	49	343
8	64	512
9	81	729
10	100	1000

[9 Marks]

(b) Explain the following logical operators

- i. **&&**
- ii. **||**
- iii. **!**

[6 Marks]

QUESTION FOUR

a). Explain the term structured programming

[2 Marks]

b). Explain any two advantages of Q4(a) above

[4 Marks]

c). Write an application in C programming having a function that reads integers representing the total sales for three sales people then determines and prints the largest and the smallest integers in the group.

[10 Marks].

d) State any four operations performed in data structures.

[4 Marks]

QUESTION FIVE

a). Explain any four characteristic of Arrays.

[8 Marks]

b). Describe the importance of program documentation

[2 Marks]

c). Write a C program to add two matrices of 3×3 .

[10 Marks]