



MACHAKOS UNIVERSITY

University Examinations for 2016/2017

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

.....YEAR SEMESTER EXAMINATION FOR
BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING
BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING
SUPPLEMENTARY/SPECIAL EXAMINATION

EMM308: COMPUTER PROGRAMMING I

DATE: .

TIME:

INSTRUCTIONS

This paper consists of FIVE questions

Answer question one and other two questions in this paper

QUESTION ONE (30 MARKS)

- a) Define the following terms and give appropriate example in each case. (10 marks)
- i Debug
 - ii Constant
 - iii Array
 - iv Algorithm
 - v Delimiter
- b) i) Write an algorithm which computes the daily wage of a casual laborer in a flower farm. (Hint: daily wage is given by the product hours worked and hourly rate. Hourly rate= shs. 50). (5 marks)
- ii) Write a program in C language to implement the algorithm in (b). (5 marks)
- c) Describe the various data types in C programming language. (5 marks)
- d) Distinguish between *selection* and *iteration* as used in programming. (2 marks)

- e) The following code snippet was coded by a student. Use it to answer the question that follows.

```
Main ( )  
{  
  int x, j, k;  
  j=k=6; x=2;  
  x=j*k;  
  printf("%d", x);  
}
```

- (i) Write the output generated when the snippet is executed. (3 marks)

QUESTION TWO (20 MARKS)

- a) Explain four features of a good program. (4 marks)
- b) Table below shows power voltage fluctuation and an appropriate alert message. Use it to answer the questions that follows.

Voltage	command /Alert
>240	High voltage
>=110	normal voltage
<110	low voltage

- i Write an algorithm that would accept the voltage fluctuation and output the appropriate alert message. (4 marks)
- ii Write a program in C language to implement the algorithm. (6 marks)
- c) Differentiate between the following terms as used in computer programming
- i Syntax error and logical error (3 marks)
- ii Source code and object code (3 marks)

QUESTION THREE (20 MARKS)

- a) Identify the symbol used to denote each of the following operations in C programming language. (3 marks)
- i Not equal to
- ii Equal to
- iii Remainder after division
- b) Describe four advantages of modular programming (4 marks)

- c) List four rules of creating variable. (4 marks)
- d) Write a program in C programming that prompts a user to input the marks scored in a subject by a student. The program then prints on the console the grade attained in that subject. The grading criteria is as outlined below. (9 marks)

Marks	Grade
70 and above	A
60 – 69	B
50 – 59	C
40 – 49	D
Less than 40	Fail

QUESTION FOUR (20 MARKS)

- a) Describe three construct used for looping in C programming language. In each case provide the respective syntax. (9 marks)
- b) i) Define array data structure giving its syntax. (4 marks)
- ii) Distinguish between high level programming language and machine level programming language. (4 marks)
- iii) With the aid of an example in each case differentiate between call by value and call by reference methods of parameter passing. (3 marks)

QUESTION FIVE (20 MARKS)

- a) Differentiate between global and local variables giving an example in each case. (4 marks)
- b) Write a program in C programming language to read and display text from a file. (7 marks)
- c) Explain the usage of the following console i/o functions in C and give their respective syntax in usage
- i) putchar () (2 marks)
- ii) scanf () (2 marks)
- iii) getchar () (1 mark)
- d) Describe the three parts of a function (3 marks)