



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR BACHELOR OF SCIENCE IN MECHANICAL
ENGINEERING

ICS 2175: COMPUTER PROGRAMMING IN C

END OF SEMESTER EXAMINATION

SERIES: APRIL 2012

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions in **TWO** sections **A & B**

Answer question **ONE (COMPULSORY)** plus any other **TWO** questions

Maximum marks for each part of a question are as shown

This paper consists of **THREE** printed pages

SECTION A (COMPULSORY)

Question One (30 Marks)

- Explain the steps in the program development cycle, call the program MYPROG.C?
(8 marks)
- Write a function that receives two numbers as arguments and returns the value of their product.
(6 marks)
- What is machine language
(1 mark)
- C offers two types of functions. What are they, and how are they different
(3 marks)
- If I want to give someone a program I wrote (HELLO.C), which files do I need to give him and explain why?
(2 marks)
- Write a C program that calculates the area of a circle, the program should ask the user to enter a number (radius)
(10 marks)

SECTION B (Attempt any TWO sections)

Question Two (20 marks)

- a) What is an include file in C program and what is the #include directive used for? (4 marks)
- b) How do you add program comments, and why are they used (4 marks)
- c) What is the difference between an integer variable and a floating-point variable? (2 marks)
- d) Show two methods for defining a symbolic constant name PIE that has a value 3.14. (4 marks)
- e) If the variable x has the value 10, what are the values of x and a after each of the following statements is executed separately?

```
a=x++;  
a=++x;
```

(6 marks)

Question Three (20 marks)

- a) After I create an executable file, do I need to keep the source file (.C) or object file (.OBJ)?, Give reason(s) (3 marks)
- b) Determine appropriate variable names for the following values and write declarations for each of the variables. (10 marks)
 - (i) A person's net worth
 - (ii) The distance to a star in miles
 - (iii) The temperature.
 - (iv) The highest grade on a test (assume it is always 100)
 - (v) A person's age to the nearest year
- c) To what value does the expression 1024% 3 evaluate (4 marks)
- d) What is an expression? (1 mark)
- e) If an expression evaluates to false, what value does the expression have? (2 marks)

Question Four (20 marks)

- a) Explain **THREE** reasons why C is the best choice of programming language (6 marks)
- b) What is the difference between a function definition and a function prototype (3 marks)
- c) If a function doesn't return a value, what type should it be declared? (1 mark)
- d) Rewrite the following code to be more readable

```
int x,y;main(){  
#include<stdio.h>  
printf(  
}”\nEnter two numbers”);scanf(  
”%d%d”,&x&y);printf(  
”\n\n%d is bigger”, (x>y)?x:y);return 0;
```

(10 marks)

Question Five (20 marks)

- a) Write a program that uses a function to find the average of five type float values entered by the user (10 marks)
- b) Write a do...while statement to count from 1 to 100 by 3s (10 marks)