



MACHAKOS UNIVERSITY

University Examinations for 2020/2021

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND YEAR FIRST SEMSTER EXAMINATION FOR

BACHELOR OF COMMERCE

BMS 201: COMPUTER PROGRAMMING

DATE: 18/8/2021

TIME: 11:0 – 1:00 PM

INSTRUCTIONS

This paper consists of FIVE questions

*Answer question **one** and any other **two** questions in this paper*

QUESTION ONE- COMPULSORY (30 MARKS)

- a) Distinguish between the following terminologies as used in C++ Programming
Language (6 marks)
- i) Pseudocode and Algorithm
 - ii) Variables and Constants
 - iii) Preprocessor and Compiler
- b) Explain the importance of the function **main()** in a c++ program (2 marks)
- c) Write a program in c++ Programming Language that demonstrates the use of while loop. (5 marks)
- d) Describe Four categories of data types used in C++ Programming Language(4 marks)
- e) i) Create an array structure in c++ named salary to store the information about an employee with the following elements (6 marks)
- Name (up to 20 characters)
 - Department (up to 10 characters)
 - Basic_pay
 - House_allowance

ii) Declare a variable named employee from the structure (3 marks)

f) Write a c++ program that demonstrates the use of void keyword in a program with functions. (4 marks)

QUESTION TWO (20 MARKS)

a) Explain the purpose of the program below. If value 21 is entered into the program below, what would be the output? (8 marks)

```
void main()
{
    int n;
    printf ("enter a number:");
    scanf ("%d", &n);
    If (n%2==0)
    printf ("even number");
    else
    printf("odd number");
}
```

b) Describe Three types of languages used to write programs in a computer system (6 marks)

c) Write a simple program that demonstrates the if...else control statement. (6 marks)

QUESTION THREE (20 MARKS)

a) Differentiate between recursive functions and iterative functions. (4 marks)

b) Write a program that computes both the area and circumference of a circle. Define two functions called area() and circum() to compute and return the area and circumference of the circle respectively (8 marks)

c) Explain the action of the following codes:

i. int Sum=x+y+z; (3 marks)

ii. void main()
{
int a=10, b=2
int s= (a>b) ? a:b;
printf("value is:%d");
}
(5 marks)

QUESTION FOUR (20 MARKS)

- a) A program is required that accepts two integers and if the first integer is bigger than the second one, the second integer is subtracted from the first one. If the second integer is bigger than the first one, the two integers are multiplied. Otherwise the two integers are added.
- (i) Draw a flowchart for the solution. (8 marks)
- (ii) Write a program for the above (8 marks)
- b) Explain the steps followed in program development (4 marks)

QUESTION FIVE (20 MARKS)

- a) Using a suitable example declare a pointer in c++ (4 marks)
- b) Illustrate Three control structures used in c++programming (6 marks)
- c) A program is required to process and award students grades for students in a class according to the following summary table.

Marks%	Grade
80 – 100	A
60 – 79	B
40 – 59	C
Below 40	Fail

Write a C++ program that prompts the user for the student's marks and outputs the appropriate grade using nested if else statement. The else option should print an error message "Wrong Marks" (10 marks)