



TECHNICAL UNIVERSITY OF MOMBASA

School of Engineering and Technology

DEPARTMENT OF ELECTRICAL & ELECTRONIC ENGINEERING

UNIVERSITY EXAMINATIONS FOR BACHELOR OF SCIENCE IN ELECTRICAL AND
ELECTRONIC ENGINEERING

TCS 4131

COMPUTER PROGRAMMING

END OF SEMESTER EXAMINATION

SERIES: APRIL 2025

TIME: 2 HOURS

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 QUESTION ONE (COMPULSORY) and any other TWO Questions.

Do not write on the question paper.

QUESTION ONE (COMPULSORY) (30 marks)

- (a) Explain the following structures in C and write a C statement for each case.
 - (i) *if*
 - (ii) *if-else*
 - (iii) *while*
 - (iv) *do-while* (8 marks)
- (b) Explain the following operators and give ONE example statement:
 - (i) ***
 - (ii) *&=*
 - (iii) *%* (6 marks)
- (c) Counting numbers 1 to 20 are to be displayed. Write the required C program using the *while* repetition statement. (6 marks)
- (d) For each of the data types: character, integer, float, double, and constant integer:
 - (i) Write the format specifier
 - (ii) State the size. (10 marks)

QUESTION TWO

- (a) For each of the data types, character, integer, float, and double:
- (i) Write declaration statements with assignments.
 - (ii) Write C statements to display the size of each data type.
 - (iii) Declare a constant integer known as pi. (10 marks)
- (b) Explain the following C statements and state the outcome after execution
- ```
bool isProgrammingFun = true;
printf("%d\n", isProgrammingFun);
```
- (3 marks)
- (c) Write a C program that uses two integer variables, myAge and votingAge. The program asks for users to input their age, and the program determines whether they can vote or not. (7 marks)

## QUESTION THREE

- (a) Explain the following C operators and write example statements for each operator.
- (i) ++
  - (ii) &&
  - (iii) !=
  - (iv) == (8 marks)
- (b) Explain the following C statements and state the outcome after execution
- ```
int numb[] = {25, 50, 75, 100};
int prime[] = {2,3,5,7}
printf("%d\n", numb[2]);
```
- (6 marks)
- (c) Write C statements to:
- (i) Declare a 2x3 matrix of counting numbers named matrix1
 - (ii) Declare a 3x1 matrix of counting numbers named matrix2
 - (iii) Declare and display a string called 'greetings' having characters 'Hallo World' (6 marks)

QUESTION FOUR

- (a) Explain the functions of the following terms in C:
- (i) Array
 - (ii) String
 - (iii) Pointer
 - (iv) Function (8 marks)
- (b) Explain the following C statements and state what will be displayed.
- ```
int myWeight = 43;
int* ptr = &myWeight;
printf("%d\n", myWeight);
printf("%p\n", ptr);
```
- (6 marks)
- (c) Write C statements to:

- (i) Create a function called myFunction which displays the statement “I know functions well”
- (ii) Call the function myFunction
- (iii) To display the exponential function of 1 (6 marks)

### QUESTION FIVE

- (a) Explain the following statements in C.
  - (i) Break
  - (ii) Continue
  - (iii) Goto to
  - (iv) Return (8 marks)
- (b) Explain the following C functions and give ONE example
  - (i) log (x)
  - (ii) cbrt (x) (4 marks)
- (c) Using nested if-else statements, write a C program that awards grades for marks entered. Grade A is displayed for a mark of 70 or more, B for a mark of 60 or more, C for 50 or more, D for 40 or more, and E for less than 40. (8 marks)