



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology

DEPARTMENT OF ELECTRICAL & ELECTRONIC ENGINEERING

UNIVERSITY EXAMINATIONS FOR BACHELOR OF SCIENCE IN ELECTRICAL AND
ELECTRONIC ENGINEERING

TCS 4131

COMPUTER PROGRAMMING

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: JULY 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) Write a C statements to:
- (i) Declare a character variable named *name* and assigned to your name.
 - (ii) Declare integer variables *myMark*, *passMark*, and a float variable named *score*.
 - (iii) Ask the user to enter the value of *myMark*, and read it from the keyboard.
 - (iv) Display *score* as a percentage of the ratio of *myMark* to *passMark*, (10 marks)
- (b) Explain the following C statements and state the outcome after execution.
- ```
bool cisFun = true;
printf ("%d\n", cisFun);
```
- (4 marks)
- (c) Write a C program to display numbers 1 – 10 using the *for* statement. (6 marks)
- (d) Write C statements to display the size of the following data types:
- (i) Character
  - (ii) Integer
  - (iii) Float

(iv) Double

(10 marks)

## QUESTION TWO

(a) Write a C statement for each of the following

(i) *if*

(ii) *if-else*

(iii) *while*

(iv) *do-while*

(8 marks)

(b) State FOUR requirements for a counter-controlled repetition in C.

(4 marks)

(c) Write a program that displays today's date and time.

(8 marks)

## QUESTION THREE

(a) Explain the following C operators and write example statements for each operator.

(i) `--`

(ii) `||`

(iii) `!`

(6 marks)

(b) Explain the following C statements:

```
int numb1[] = {5, 10, 15, 20};
```

```
int m[2][3] = { {1, 4, 2}, {3, 6, 8} };
```

```
printf("%d\n", numb[0]);
```

```
printf("%d", matrix[0][2]);
```

(6 marks)

(c) Write C statements for the following operators:

(i) `&=`

(ii) `%`

(2 marks)

(d) Write C statements to display:

(i) The exponential of 1

(ii) The sine of  $\pi/2$

(iii) The square root of 91.

(6 marks)

## QUESTION FOUR

(a) Explain the following terms in C:

(i) Function

(ii) String

(iii) Pointer

(iv) Stray

(8 marks)

(b) Explain the following C statements and state what will be displayed.

```
float y = 4.56;
```

```
int* ptr = &y;
```

```
printf("%d\n", y);
```

```
printf("%p\n", ptr);
```

(6 marks)

(c) Write C statements to:

(i) Create a function called myFunction to display the statement "It is my function."

(ii) Call myFunction

- (iii) To display the natural logarithm of 10 (6 marks)

### QUESTION FIVE

- (a) State and explain the following jump statements in C and draw the flowcharts.
- (i) Break
  - (ii) Continue
  - (iii) Goto to (6 marks)
- (b) Explain the following C functions and give ONE example
- (i) Log10(x)
  - (ii) cbrt (x) (4 marks)
- (c) Write C statements for the perform the following:
- (i) Open a file called 'myFile' for writing
  - (ii) Write the statement 'Good Morning' into myFile. (4 marks)
- (d) Using the if-else statement, write a C program that compares a student mark against a pass mark of 40 and displays "PASS" or "FAIL". (6 marks)