3 Yr. Degree/4 Yr. Honours 2nd Semester Examination, 2025 (CCFUP)

Subject : Mathematics

Course: MATH2051 (SEC)

(Programming in C)

Time: 2 Hours **Full Marks: 40**

The figures in the right hand margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.
Notation and Symbols have their usual meaning.

1. Answer *any five* questions: 2×5=10

(a) Differentiate between `++i` and `i++`.

(b) Write the syntax of a do-while loop.

(c) Explain the use of `strlen()` and `strcat()`. 1+1

(d) What is the use of return statement in functions?

(e) What is the difference between structure and union in C?

(f) Give syntax of 'switch case' statement.

(g) Explain relational operator with an example. 1+1

(h) Give the meaning of declaration `int*ptr`.

2. Answer *any two* questions. 5×2=10

(a) Explain conditional operator using suitable examples. What are the limitations of conditional operator? 3+2

(b) Write a C-program to convert a given number of seconds into hours, minutes and seconds.

(c) Write a C-program to generate the Fibonacci sequence using function.

(d) Explain if-else and nested if-else in C-language with syntax. 2+3

3. Answer *any two* questions. 10×2=20

(a) (i) Write a C-program to check whether a given number is palindrome or not. (A number that remains the same after reversing is called a palindrome. For example : 151, 1441 etc.)

(ii) Explain 'call by value' and 'call by reference'. 5+5

(b) (i) Explain user-defined functions. Give an example of it.

(ii) Write a C-program to swap two numbers by using 'call by reference'. 5+5

(c) (i) Explain the use of break and continue statements in loops with example.

(ii) Explain the declaration and initialization of one and two dimensional arrays with examples. (2+3)+(2+3)

(d) (i) Write a C-program to find the sum and mean of all elements in an array using pointers.

(ii) What will be the final value of d in the following code?

```
#include<stdio.h>
int main()
 { int a=10, b=5, c=5;
   int d;
   d=b+c==a;
 printf("%d",d);}
```

(iii) Explain structure within a structure with an example. 4+2+4
