



14PCD13/23

First/Second Semester B.E. Degree Examination, Jan./Feb. 2021

Programming in C and Data Structures

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. What is pseudo-code? Compare it with an algorithm. (05 Marks)
- b. Convert the following into 'C' expressions :
 - i) x^y^z
 - ii) $e^{\sqrt{x}}$
 - iii) $\frac{a \cdot b}{\sqrt{c \cdot d}}$
 - iv) $\sqrt{s(s-a)(s-b)(s-c)}$. (04 Marks)
- c. Write a C program to find largest among three integers using ternary operators. (06 Marks)
- d. Explain formatted input and output statements with examples. (05 Marks)

OR

- 2 a. Explain the formatted and unformatted I/O function in C language. Give example for each. (10 Marks)
- b. Write a C program to find the largest of three numbers. (04 Marks)
- c. What is execution character? What are the different escape sequence character in C language? (06 Marks)

Module-2

- 3 a. Write a C program to grade students result based on following conditions :
 - i) Marks < 35 grade "Fail"
 - ii) $35 \geq$ Marks < 60 grade "Second class"
 - iii) $60 \geq$ marks < 70 grade "First class"
 - iv) $70 \geq$ marks \leq 100 grade "First class with distinction". (08 Marks)
- b. Explain switch statement with an example. (07 Marks)
- c. Write a note on goto statement. (05 Marks)

OR

- 4 a. Explain cascade if-else and nested if-else statements. (06 Marks)
- b. Write a C program to implement simple calculator using operators +, -, * and /. Also handle divide by zero error. Use switch statement. (10 Marks)
- c. What is dangling else problem? Explain how to handle this in C programming. (04 Marks)

Module-3

- 5 a. What is an array? Explain the declaration and initialization of one and two dimensional array. (06 Marks)
- b. What is string? Explain any five string manipulation functions. (06 Marks)
- c. Write a program to find the product of two matrices with suitable messages. (08 Marks)

OR

- 6 a. What is recursion function? Find the factorial of number using recursive function. (06 Marks)
- b. Explain with an example of different passing parameter to function. (08 Marks)
- c. Write a C program to check the given string is palindrome or not. (06 Marks)

Module-4

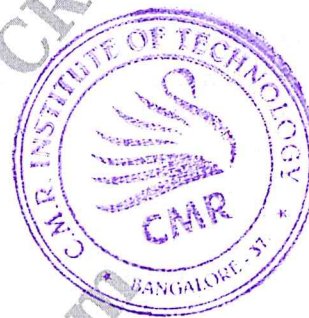
- 7 a. What is a structure? Explain the syntax of structure declaration with an example. (06 Marks)
 b. Write a C program to maintain an employee information consisting of three fields (empid, name, salary) using array of structures. (10 Marks)
 c. Explain with an example how fscanf() and fprintf() function is used with the file. (04 Marks)

OR

- 8 a. Write a program to copy the content of one file to other file. (08 Marks)
 b. What is a file? Explain the different modes in which the file can be opened. (06 Marks)
 c. What are command line arguments? Explain its parameters. (06 Marks)

Module-5

- 9 a. What is pointer? Explain with program. (06 Marks)
 b. Explain the following :
 i) #define
 ii) #include
 iii) nesting of macro
 iv) argumented macro. (10 Marks)
 c. Explain malloc and calloc functions. (04 Marks)



OR

- 10 a. What is a macro? Write a program to find the square of a number using macros. (06 Marks)
 b. List out the difference between static memory allocation and dynamic memory allocation. (08 Marks)
 c. Explain :
 i) Preprocessor directives
 ii) Symbolic constants. (06 Marks)
