

CBCS SCHEME

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20MCA19

First Semester MCA Degree Examination, Jan./Feb. 2021 Basics of Programming and Computer Organization

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Explain the structure of a typical C program. (05 Marks)
- b. What are the data types available with C? Give valid examples. (05 Marks)
- c. What is the purpose of printf() and scanf() statement? Explain formatted printf() and scanf() along with examples. (10 Marks)

OR

- 2 a. Define an array. Explain declaration and initialization of one dimensional array with an example. (10 Marks)
- b. Explain the following with their syntax:
 - i) if-else
 - ii) else-if ladder
 - iii) for statement
 - iv) do..while statement. (10 Marks)

Module-2

- 3 a. Define structure. How would you declare and initialize structure variables? Give examples. (10 Marks)
- b. Write a C program to read details of 10 students and to print the marks of the student if his name is given as input using structures. (10 Marks)

OR

- 4 a. Write a C program to pass structure variable as function argument. (10 Marks)
- b. Explain structures within structure with programming example. (10 Marks)

Module-3

- 5 a. What is pointer? Give advantages and disadvantages of pointers in C. (10 Marks)
- b. How do you declare a pointer variable? Write a program to show a call-by-reference function. (10 Marks)

OR

- 6 a. What is recursion? Write a recursive program to find the factorial of a number. (10 Marks)
- b. Write a C program to read two matrices and to find the sum by using passing arrays to functions. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

Module-4

- 7 a. Carry out the conversion as follows:
- $(69.25)_{10} = (?)_2$
 - $(11101.111)_2 = (?)_8$
 - $(5A.3C)_{16} = (?)_{10}$
 - $(135.43)_8 = (?)_{16}$
- (10 Marks)
- b. Carry out the following operations:
- 5250-321 using 10's complement
 - 20-1000 using 9's complement
 - 11010-1101 using 2's complement
 - 11010-10000 using 1's complement.
- (10 Marks)

OR

- 8 a. Convert the following:
- $(41)_{10} = (?)_2$
 - $(0.6875)_{10} = (?)_2$
 - $(10110001101011)_2 = (?)_{16}$
 - $(B65F)_{16} = (?)_{10}$
 - $(306.D)_{16} = (?)_2$
- (10 Marks)
- b. Define binary logic. Explain three basic operations of binary logic with their truth tables.
- (10 Marks)

Module-5

- 9 a. With a neat diagram, explain the basic functional unit of a computer. (08 Marks)
- b. Explain big-endian and little-endian assignments. (08 Marks)
- c. Explain the basic instruction types. (04 Marks)
- OR
- 10 a. What are condition codes? Explain various condition code flags. (10 Marks)
- b. Explain any five addressing modes. (10 Marks)
