CBCS SCHEME

USN | | | | | | | | | | |

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)**

Module-4

7 a. Carry out the conversion as follows:
   i) $(69.25)_{10} = (?)_2$
   ii) $(11101.111)_2 = (?)_8$
   iii) $(5A.3C)_{16} = (?)_{10}$
   iv) $(135.43)_8 = (?)_{16}$ **(10 Marks)**

   b. Carry out the following operations:
   i) 5250-321 using 10's complement
   ii) 20-1000 using 9's complement
   iii) 11010-1101 using 2's complement
   iv) 11010-10000 using 1's complement. **(10 Marks)**

OR

8 a. Convert the following:
   i) $(41)_{10} = (?)_2$
   ii) $(0.6875)_{10} = (?)_2$
   iii) $(1011000110101 1)_2 = (?)_{16}$
   iv) $(B65F)_{16} = (?)_{10}$
   v) $(306.D)_{16} = (?)_2$ **(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)**

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