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15PCD13/23

**First/Second Semester B.E. Degree(CBCS)Examination****Programming In C and Data Structures**

Time: 3 hrs.

Max. Marks: 80

**Note: Answer any FIVE full questions, choosing one full question from each module.****Module-1**

- 1 a. Here is list of possible names for variables in C language. Which are valid names and invalid names? If name is invalid, explain why?
- i) 1999\_space      ii) \_apple      iii) iNtEL      v) one\_2  
v) for      vi) #12      vii) i.b.m      viii) help+me      (08 Marks)
- b. What is the purpose of a printf() statement? Explain the formatted printf() along with the respective examples. (08 Marks)

**OR**

- 2 a. Write a C program to find area of a triangle when we know the lengths of all three of its sides. (05 Marks)
- b. Write a C program that computes the size of int, float, double and char variables. (05 Marks)
- c. What are Operators? Explain the relational and logical operators supported in C language. (06 Marks)

**Module-2**

- 3 a. Explain the Syntax of nested if ...else statement. Write a C program to find largest of three numbers using nested if ... else statement. (08 Marks)
- b. Explain the syntax of do-while statement. Write a C program to find the factorial of a number using while loop, where the number n is entered by the user. (08 Marks)
- (Hint: factorial of  $n = 1*2*3*....*n$ ).

**OR**

- 4 a. Write a C Program to find GCD of two numbers using ternary operator and for loop. (08 Marks)
- b. Write a calculator program in C language to do simple operations like addition, subtraction, multiplication and division. Use switch statement in your program (08 Marks)

**Module-3**

- 5 a. What is an array? Explain the declaration and initialization of single dimensional array with example. (05 Marks)
- b. Write a C Program to concatenate two strings without using built in function strcat( ). (05 Marks)
- c. Write a C program to check a number is a prime number or not using recursion. (06 Marks)

**OR**

- 6 a. What is function? Write a C program to find cube of a Number using function. (05 Marks)
- b. List string manipulation library functions and explain any two of them with example (05 Marks)
- c. Write a C Program to find greatest number from two dimensional array (06 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. What is a structure? Explain the C syntax of structure declaration with an example. (04 Marks)  
b. What is a file? Explain file open and close functions with arguments. (04 Marks)  
c. Explain fputc( ), fputs( ), fgetc( ) and fgets() functions with syntax. (08 Marks)

**OR**

- 8 a. Write a C program to store Name, USN, subject name and IA Marks of students using structure. (05 Marks)  
b. Explain how the structure variable passed as a parameter to a function with example. (05 Marks)  
c. Write a C program to read and display a text from the file. (06 Marks)

**Module-5**

- 9 a. Write and explain any five preprocessor directives in C. (05 Marks)  
b. Write a C program to swap two numbers using call by pointers method. (05 Marks)  
c. Explain malloc( ), calloc( ) functions with examples. (06 Marks)

**OR**

- 10 a. Explain stack and queue related terms and give their applications. (08 Marks)  
b. What is pointer? Give the advantages and disadvantages of pointer data type. (08 Marks)

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