

**C-Programming for Problem Solving****18CPS13/23****Module-1**

1

- (a). What is a Computer? Explain different type of computers. 6M
- (b). Define and give example for the following. 6M
- i. Variable
  - ii. Constant
  - iii. Declaration
- (c). Convert the following mathematical expressions in to 'C' expression. 8M
- a.  $X = e^{\text{power root of } (x)} + e^{\text{power root of } (y)} / x \sin \text{root } (y)$
  - b.  $C = a^a + 1 / ((b + 1 / (c + d)))$
  - c.  $C = 3 \text{ root of } ((a^a + b^b * b^b) / (a^a * a - b^b * b^b))$
  - d.  $\text{Area} = ((\text{pie} * r * r) + (2 * \text{pie} * r * h))$

**OR**

2

- (a). What are input device? Mention & explain any 2 input devices. 6M
- (b). Mention different types of operators and explain any 4 in detail with explain. 6M
- (c). Differentiate between primary memory & secondary memory? 4M
- (d). Evaluate each of the following expression independent of each other.
- The declaration & initialize statement is ..... `int i=3, j=4, k=2;`
- (a). `i++-j--` (b). `++k%--j` (c). `j+1/i-1` (d). `j++/i--` 4M

**Module-2**

3

- (a). What is the purpose of `scanf()` & `printf()` statement? Explain the formatted `printf()` along with the respective example. 6M

(b). Write a 'C' Program to check whether a given number is even or odd using if-else statement. 6M

(c). Write a 'C' Program to perform the simple calculator operations like addition, subtraction, multiplication & division use 'switch' statement in program. 8M

**OR**

4(a). Explain different types of loops in C with syntax & example. 8M

(b). Explain the syntax of nested 'if...else' statement. Write a 'C' Program to find largest of these numbers using nested 'if' statement. 6M

(c) Write a 'C' Program to find the sum of odd numbers 'n' natural numbers using do 'while' loop. 6M

### Module-3

5

(a). Define array? Explain the declaration & initialization of single dimensional array with example. 5M

(b). Explain any five string manipulation library functions with example. 8M

(c). Write a 'C' Program to check a number is prime or not? 7M

**OR**

6

(a). How string is declared & initialized? Explain string input/output functions with an example. 6M

(b). Write a 'C' Program to read N numbers into an array & perform Linear search 8M

(c). Write a 'C' Program to concatenate two strings without using built in function. 6M

### Module-4

7

(a). What are 'C' functions? Explain the difference between user defined & library functions. 6M

(b). Differentiate between call by value and call by reference with examples. 6M

(c). Write a 'C' Program to find the binomial co-efficient of a number using recursion. 8M

**OR**

8

(a). Explain the different elements of user defined functions in detail. 8M

- (b). Write a 'C' Program to find the largest element in an array. 6M
- (c). Write a 'C' Program to calculate the Fibonacci sequence using recursion functions.6M

### **Module-5**

9

- (a). Explain how the structure variable can be passed as a parameter to a function with an example. 6M
- (b). Define pointer. Explain the declaration & initialization of pointer. 6M
- (c). Write a 'C' Program to maintain a record of student details. Print the marks of the student given student name as input using structures. 8M

**OR**

10

- (a). Explain the array of pointers with examples. 6M
- (b). What are pre-processor directives? Explain #define & #include **pre**-processor directives. 6M
- (c). Write a 'C' Program using pointers to compute the sum, mean & standard derivation of all elements stored in an array of 'n' real numbers. 8M

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