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17PCD13/23

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

**Programming in C and Data Structure** 

Time: 3 hrs.

Max. Marks: 100

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

# Module-1

a. Define an algorithm? Write an algorithm to find perimeter and area of a circle. (06 Marks)

b. Write the structure of a C program. Explain with an example. (06 Marks)

c. What is an idemitifier? Classify the following as valid and invalid identifier. If invalid give reason.

i) apple ii) continue iii) one 10 iv) #abc123 v) avErAgE. (08 Marks)

### OR

2 a. Explain printf() and scanf() function with example. (08 Marks)

b. Convert the following mathematical expression into C expression:

$$i) E = \frac{e^{\sqrt{x}} + e^{\sqrt{y}}}{x \sin \sqrt{y}}$$

ii) 
$$a + \frac{b(ad+e)}{b-a} - \frac{c}{d}$$
. (06 Marks)

c. Write a C program to find simple interest and display the results. (06 Marks)

#### Module-2

3 a. Explain switch statement with syntax and example. (08 Marks)

b. Differentiate between while and do while loops. (06 Marks)

c. Write a C program to reverse an integer number and check whether it is a palindrome or not.

(06 Marks

#### OR

4 a. List all branching statements. Explain any two with proper syntax and example. (08 Marks)

b. Explain break and continue statement with example. (06 Marks)

c. Write a C program to find a factorial of a number using for loop. (06 Marks)

## Module-3

5 a. What is an array? How one and two dimensional arrays declared and initialized? Give an example. (08 Marks)

b. Write a C program to concatenate two strings without using built in function strcat().

(06 Marks)

いるがあれる。ないというなりあるからい

c. What is C function? Write a C function to find cube of a number. Display the result in main() function. (06 Marks)

### OR

6 a. Explain any four string manipulation functions with example. (08 Marks)

b. Write a C program to read N elements and find biggest element in an array. (06 Marks)

c. Write a C program to check a number is a prime number or not using recursion. (06 Marks)

### Module-4

7 a. What is a structure? Write a syntax of structure declaration with an example.

b. Write a C program to pass structure variable as function argument.

c. What is file? Explain fopen() and fclose() with example.

(06 Marks)

(08 Marks)

(06 Marks)

## OR

- 8 a. Write a C program to maintain a record of 'N' employee detail using an array of structure with three fields(id, name, salary) and print details of employees whose salary is above 10000. (08 Marks)
  - b. Write a C program to open a file for input, read in a series of numbers until end of file (eof) and display each number on the monitor. (06 Marks)
  - c. Explain fgetc(), fgets(), fputc() and fputs() function with syntax. (06 Marks)

# Module-5

9 a. What is a pointer? Write a C program to read two numbers and function to swap these numbers using pointers.

b. Explain different dynamic memory allocation function in C with syntax.

(08 Marks) (06 Marks

c. What is Stack? Explain operation of stack.

#### OR

10 a. What are primitive and non primitive data types explain with example.

b. Explain any two preprocessor directives in C with example.

c. What is queue? Explain its application.

(06 Marks)

(08 Marks)

106 Marks