

CBCS Scheme

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15PCD13/23

First/Second Semester B.E. Degree Examination, June/July 2016 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. Define Pseudo code. Write a Pseudo code to find sum and average of given three numbers. (05 Marks)
- b. What is an identifier? What are the rules to construct identifier? Classify the following as Valid/Invalid Identifiers.
i) num2 ii) \$num1 iii) +add iv) a_2 (06 Marks)
- c. Write a C program to find area of rectangle. (05 Marks)

OR

- 2 a. Explain printf and scanf functions with example. (04 Marks)
- b. List all the operators used in C. Give examples. (08 Marks)
- c. Write the output of the following C code

```
i) void main ( )  
{  
    int a = 5, b = 2, res1 ;  
    float f1 = 5.0, f2 = 2.0, res2 ;  
    res1 = 5/2.0 + a/2 + a/b ;  
    res2 = f1/2 * f1 - f2 ;  
    printf ("res1 = %d res2 = %f", res1, res2) ;  
}
```

```
ii) void main ( )  
{  
    int i = 5, j = 6, m, n ;  
    m = ++ i + j ++ ;  
    n = -- i + j -- ;  
    printf ( "m = %d n = %d", m, n) ;  
}
```

(04 Marks)

Module-2

- 3 a. List all the conditional control statements used in C. Write a C program to find the biggest of three numbers. (08 Marks)
- b. Write a C program to find the reverse of an integer number NUM and check whether it is PALINDROME or NOT. (08 Marks)

OR

- 4 a. Explain the switch statement with syntax and example. (08 Marks)
- b. List the differences between the while loop and do – while loop. Write a C program to find sum of Natural numbers from 1 to N using for loop. (08 Marks)

Module-3

- 5 a. What is an array? Explain the declaration and initialization of single and double dimensional arrays with example. (08 Marks)
b. Write a C program to search a name in a list of names using Binary searching technique. (08 Marks)

OR

- 6 a. Explain any Five string manipulation library functions with example. (08 Marks)
b. Write a C program to read N elements and find biggest element in the array. (08 Marks)

Module-4

- 7 a. What is structure? Explain the syntax of structure declaration and initialization with example. (05 Marks)
b. Write a C program to maintain a record of 'n' employee detail using an array of structures with three fields (id, name, salary) and print the details of employees whose salary is above 5000. (07 Marks)
c. Explain fprintf and fscanf functions with syntax. (04 Marks)

OR

- 8 a. Explain structure with in a structure with an example. (07 Marks)
b. What is a file? Explain fopen and fclose functions. (05 Marks)
c. Explain fgets and fputs functions. (04 Marks)

Module-5

- 9 a. What is a pointer? Explain how the pointer variable is declared and initialized. (04 Marks)
b. Explain any two preprocessor directives in C with example. (06 Marks)
c. Write a C program to swap two numbers using call by pointers (address) method. (06 Marks)

OR

- 10 a. What is dynamic memory allocation? Write and explain the different dynamic memory allocation functions in C. (06 Marks)
b. Explain stack and Queue data structures along with their applications. (06 Marks)
c. Explain how pointers and arrays are related with example. (04 Marks)
