CBCS Scheme

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

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)**

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