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14PCD13/23

**First/Second Semester B.E. Degree Examination, June/July 2017**  
**Programming in C and Data Structures**

Time: 3 hrs.

Max. Marks: 100

**Note: Answer FIVE full questions, selecting ONE full question from each module.**

**Module – 1**

- 1 a. What is variable? What is the purpose of variable? What are the rules of variables? (07 Marks)  
b. What is operator? Explain any four operator with an example. (09 Marks)  
c. Define (i) Keyword (ii) Constants (iii) Datatype (iv) Delimiters (04 Marks)
- 2 a. Explain the formatted and unformatted I/O function in C language. Give example for each. (10 Marks)  
b. Write a C program to find the largest of three numbers. (04 Marks)  
c. What is execution character? What are the different escape sequence character in C language? (06 Marks)

**Module – 2**

- 3 a. What is branching? Explain if, if...else and switch with syntax and example. (10 Marks)  
b. Write a C program to generate N prime numbers. (06 Marks)  
c. Explain the significance of goto statement in a C program. (04 Marks)
- 4 a. What is the difference between break and continue statements? Explain with example. (06 Marks)  
b. Write a C program to find the GCD and LCM of two integer numbers. (07 Marks)  
c. What is loop? List and explain the different type of loops. (07 Marks)

**Module – 3**

- 5 a. What is an array? Explain the declaration and initialization of one and two dimensional array. (06 Marks)  
b. What is string? Explain any five string manipulation functions. (06 Marks)  
c. Write a program to find the product of two matrices with suitable messages. (08 Marks)
- 6 a. What is recursion function? Find the factorial of number using recursive function. (06 Marks)  
b. Explain with an example of different passing parameter to function. (08 Marks)  
c. Write a C program to check the given string is palindrome or not. (06 Marks)

**Module – 4**

- 7 a. Explain the structures and function with an example. (08 Marks)  
b. What is structure? Explain with an example of structure declaration and accessing elements. (06 Marks)  
c. Write C program to accept roll no, name, marks of students and display the sum and average the marks. (06 Marks)
- 8 a. What is file? Explain how the file open and file close function. (04 Marks)  
b. Write the concepts of array of structures with a suitable C program. (08 Marks)  
c. Write a C program to read a text file and count numbers of characters, words and lines. (08 Marks)

**Module – 5**

- 9 a. What is pointer? Explain how pointer variables are declared and initialized with example. (04 Marks)
- b. Write a C program using pointer to compute the sum, mean and standard deviation of all elements stored in an array of n real numbers. (10 Marks)
- c. What is dynamic memory allocation? Explain different dynamic memory allocation. (06 Marks)
- 10 a. What is preprocessor? Explain # define preprocessor directive. (04 Marks)
- b. What is data structure? What are primitive and non primitive data types? (04 Marks)
- c. Write note on:  
(i) Stack            (ii) Queue            (iii) Linked list            (iv) Tree (12 Marks)

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