

1157**Code : 15CS41T**Register
Number

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IV Semester Diploma Examination, Nov./Dec. 2017**DATA STRUCTURE USING C****Time : 3 Hours]****[Max. Marks : 100**

- Note :** (i) Answer any **six** full questions from Part – A. Each question carries **5** marks.
(ii) Answer any **seven** full questions from Part – B. Each question carries **10** marks.

PART – A

1. Explain with syntax how to open a file in different modes. **5**
2. List different types of data structures with example for each. **5**
3. Explain various operations performed on singly linked list. **5**
4. Explain how stack is implemented in C. **5**
5. Describe circular and double ended queue. **5**
6. Explain the following : **5**
 - (a) Root node
 - (b) Leaf node
 - (c) Path
 - (d) Degree of a node
 - (e) Depth
7. Construct binary tree with following data : **5**
14, 15, 4, 9, 7, 18, 3, 5, 16, 4, 20, 17, 9, 14, 5
8. Explain the concept of binary search with example. **5**
9. Write a recursive C program to find GCD of two numbers. **5**

PART – B

10. (a) Discuss the address and indirection operators used with pointers. 5
(b) Differentiate between call by value and call by reference parameters. 5
11. Write a program to illustrate pointer arithmetic's. 10
12. (a) Write a 'C' program to count number of characters present in a given file. 6
(b) Explain the use of ftell() and fseek() functions. 4
13. Write C functions to
(a) Insert an element at front of Singly linked list. 5
(b) Delete a node from Singly linked list. 5
14. Explain Circular linked list and Doubly linked list with figure. 10
15. Write a C program to implement PUSH and POP operations on STACK using arrays. 10
16. Write algorithm to
(a) Insert an element into Queue. 5
(b) Delete an element from Queue. 5
17. Explain Binary tree and its different types of traversals with example. 10
18. (a) Explain postfix and prefix expression. 4
(b) Write postfix and prefix expression for
 $A + (B - C) * D(E * F)$ 6
19. Write a C program to Sort an array using Bubble Sort. 10

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