



22224/B 320

Reg. No. 

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**II Semester B.C.A. 2 Degree Examination, May/June 2017**  
**DATA STRUCTURES USING C**  
**Theory**  
**(2011-2012 Onwards) (Repeater)**

Time : 3 Hours

Max. Marks : 80

- Instructions:** 1) Answer **all** Sections.  
2) Draw **neat** diagrams **wherever** necessary.  
3) Write question number **correctly**.

SECTION – A

Answer **any ten** questions :

**(2×10=20)**

1. Define data structure. Explain its types.
2. Define pointers. How to declare and initialize pointers ?
3. How static memory allocation is different from dynamic memory allocation ?
4. Write a syntax of malloc( ) function.
5. List the various input/output functions of file in C.
6. What is random access file ? Explain fseek( ) and ftell( ) functions.
7. Define recursion. State its advantages.
8. Write an algorithm to search an element using binary search.
9. What is sorting ? List its different types.
10. Define stack. What are its applications ?
11. What is priority queue ?
12. What is binary search tree ?

P.T.O.



## SECTION – B

Answer **any six** :**(5×6=30)**

13. What is static memory allocation ? State the advantages of dynamic memory allocation over static memory allocation.
14. Write a program to find GCD of using recursion.
15. Write an algorithm for PUSH and POP operations.
16. Define file. Explain any 5 access mode for opening a file.
17. State the advantages and disadvantages of linked list.
18. Write the sort elements in ascending order using selection sort.
19. Convert the following to infix.  
i)  $- / * A + BCDF$                       ii)  $ABC \wedge +$                       iii)  $+ / x \wedge yza$
20. Explain preorder, postorder and inorder tree traversal.

## SECTION – C

Answer **any 3** questions.**(10×3=30)**

21. Explain in brief different types of non-primitive data structure.
  22. Apply bubble sort technique and sort the following numbers in ascending order.  
67    22    42    90    54    46    32
  23. Explain the following terms :
    - i) Tree
    - ii) Degree of a node
    - iii) Rool
    - iv) Ancestors
    - v) Siblings.
  24. Define queue. Explain the working of circular queue with an example.
  25. Construct the binary search tree with the following data.  
14    11    36    37    7    8    4
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