

61225

Second Semester B.Sc. Degree Examination, May/June 2019

(CBCS Scheme)

Computer Science

Paper II – DATA STRUCTURES

Time : 3 Hours]

[Max. Marks : 70

Instructions to Candidates : Answer **all** questions.

SECTION – A

Answer any **TEN** questions. Each question carries **2** marks : (10 × 2 = 20)

1. Define data structure.
2. What is time complexity?
3. How strings are stored in fixed length storage?
4. Write any two string operations.
5. What is sorting?
6. What are the components of linked list?
7. What is garbage collection?
8. Write the difference between stack and queue.
9. What is priority queue?
10. Define graph. ✓
11. Define the terms :
 - (a) Binary tree
 - (b) Complete binary tree
12. How do you find the height of a tree?



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SECTION - B

Answer any **FIVE** questions. Each question carries **10** marks: (5 × 10 = 50)

13. (a) Explain linear and non-linear data structures with examples. (5)
- (b) Explain different operations performed on non-primitive data structure. (5)
14. (a) Write a 'C' program to copy one string into another string without using built-in-functions. (5)
- (b) Write an algorithm to insert an element into an array. (5)
15. (a) Write a program to implement insertion sort. (5)
- (b) Explain linear search technique. (5)
16. (a) Mention operations on singly linked list. Write an algorithm to delete first node in a linked list. (4)
- (b) Explain circular linked list. (4)
17. (a) Explain various operations on stack. (5)
- (b) Write a 'C' program to implement Towers-of-Hanoi problem. (5)
18. (a) Explain memory representation of queue. (5)
- (b) What is a Deque? Explain the types of Deque. (5)
19. (a) Explain depth-first-search algorithm with an example. (5)
- (b) Write an algorithm for creation of binary search tree. (5)
20. (a) Briefly explain various tree traversal methods. (6)
- (b) Construct a binary tree given their traversals : (4)
- Post order : FECHGDBA
Inorder : FCEABHDG

