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II Semester B.Sc. Degree Examination, September - 2021**COMPUTER SCIENCE****Data Structures****CBCS Scheme (R)****PAPER : II****Time : 3 Hours****Maximum Marks : 70****Instructions to Candidates:****Answer All Sections.****SECTION - A****Answer any Ten questions. Each question carries 2 marks. (10×2=20)**

1. Define Data structures.
2. What are primitive data types?
3. Explain time complexity of an algorithm.
4. What is garbage collection?
5. What is an array? Give example.
6. What are the memory allocation functions? Give syntax.
7. Define string.
8. What is Doubly linked list?
9. Mention the operations performed on stack.
10. What is a binary tree?
11. Write any two applications of trees.
12. Define direct graph and undirect graph.

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

13. a) Explain the classification of data structures. (7+3)
b) What are different operations on data structures.
14. a) Write about different types of string handling functions. (6+4)
b) Write an algorithm to insert an element ITEM into Kth Position in array A.

[P.T.O.]



15. a) What is meant by searching? Explain the differences between linear search and binary search. (4+6)
b) Define sorting. What are different sorting techniques. Explain bubble sort.
16. a) Explain Towers of hanoi problem. (5+5)
b) Define stack. What are the applications of stack?
17. a) Evaluate the postfix expression $456*+$. (5+5)
b) Explain about priority Queues in detail.
18. a) What is linked list? And explain traversing a linked list. (7+3)
b) What are the advantages of linked list over arrays.
19. a) Explain the properties of Binary tree. (4+6)
b) What are the different traversals of trees explain with example.
20. a) Explain the Representation of graphs in memory. (4+6)
b) Explain Depth first search traversal of a graph.

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