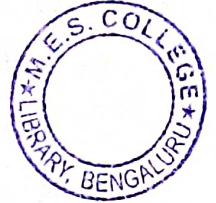




SE – 208

**II Semester B.A./B.Sc. Examination, September 2020**  
**(CBCS) (Fresh + Repeaters) (2014-15 and Onwards)**  
**(Semester Scheme)**  
**COMPUTER SCIENCE (Paper – II)**  
**Data Structures**



Time : 3 Hours

Max. Marks : 70

**Instruction : Answer all Sections.**

**SECTION – A**

Answer **any 10**. Each question carries **two** marks.

**(10×2=20)**

1. What is the space complexity ?
2. Define abstract data type and give example.
3. Mention any four string operation.
4. What is the difference between searching and sorting ?
5. Mention any two applications of stack.
6. Define queue.
7. What is graph ?
8. What is binary tree ?
9. Mention an advantage of array.
10. Convert the given in-fix expression  $(A + B)/(A - B)$  to post-fix expression.
11. What is overflow and underflow condition in stack ?
12. What are the application of graph ?

**SECTION – B**

Answer **any 5**. Each question carries **10** marks.

**(5×10=50)**

13. a) Define Algorithm. Write an algorithm to find a substring to a given string. **5**
- b) Explain the various operations performed on data structures. **5**

P.T.O.



14. a) Write a C program to implement selection sort. 5  
b) Write an algorithm for Binary Search. 5
15. a) Write a note on linked list. 5  
b) Write an algorithm to delete a node from the end of the list. 5
16. a) Define stack. List the operations performed on stack. 5  
b) Write a C program to implement the stack operation. 5
17. a) What is dequeue ? Explain with suitable example. 10  
b) Write a algorithm to insert an element into queue.
18. a) List the difference between array and linked list. 10  
b) Write a C program to insert an element into an array.
19. a) Define the following : 10  
i) Complete binary tree.  
ii) Tree.  
iii) Mention any three applications of tree.  
b) Explain binary tree traversal with example.
20. a) Define the following : 10  
1) Graph  
2) Weighted Graph  
3) Directed Graph  
4) Degree of Graph  
5) Null Graph  
b) Write a note on BFS algorithm.
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