Roll No. | | | | | | | | | | | |

Total No. of Questions: 07 **Total No. of Pages: 01**

BCA (Sem. 3)
DATA STRUCTURES
Subject Code: BSBC-302
Paper ID: B0229

Time: 3 Hrs. **Max. Marks: 60**

INSTRUCTIONS TO CANDIDATES:

1. **Section A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **Section B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.**

SECTION A

l. What is computational complexity of an algorithm?

a) Explain the enqueue operation on a queue?

b) Explain the time space tradeoff between array and linked list?

c) Write down the 2 basic operations to sort a list of numbers?

d) Write down limitations of the array data structure?

e) How is a stack different from a queue?

f) What is tree traversal?

g) Which data structure is most suited for bubble sort and why?

h) Draw the structure of node of a doubly linked list?

i) Define Insertion sort?

j) What are the front and rear pointers of a queue?

SECTION B

2. What is a stack? What operations can be performed on a stack? Write down the steps to perform these operations?

3. Write algorithm to generate a Fibonacci sequence
a) Using recursion,
b) Without using recursion?

4. Why is the reverse polish notation preferred to solve an expression? Write down the steps to convert an expression in infix notation into reverse polish notation?

5. What is dynamic storage management? How is it implemented?

6. Define a binary tree? How is it represented in memory?

7. Write down the algorithm to sort a list using selection sort? Discuss its complexity?