**Short questions:**

1. State the difference between static and dynamic data structures.
2. Why we use stacks as data structure?
3. State the benefits of quick sort.
4. What is meant by asymptotic notations?
5. How breath first search traversal works?
6. Describe ADT.
7. List down linear and non-linear data structures.
8. State the benefits of stacks over queues.
9. What is two-dimensional Array?
10. Define term efficiency in data structures.
11. Define Hashing.
12. Why we use sorting in data structures?
13. State the difference between static and dynamic data structures.
14. Why we use queues as data structure?
15. What is meant by greedy algorithms?
16. What is meant by asymptotic notations?
17. What is meant by time complexity of an algorithm?
18. State the difference between primitive and non-primitive data types.
19. What is meant by reference types?
20. State the benefits of stacks over queues.
21. What is minimum spanning tree?
22. Define term efficiency in data structures.
23. Define Hashing.
24. Why we use sorting in data structures?

**Long Questions:**

**Q.1** If you have to choose between array and link list in your program what do you choose. Justify your answer with logical reasoning.

**Q.2** Write the code in JAVA to implement Double linked list in your program.

**Q.3** Your fellow mate has requested you to implement the INSERTION SORT functionality on a user-defined array.

**Q.4** What is binary search tree? What is the possible maximum number of nodes in BST of depth d. Make a BST for the following sequence of numbers and traverse all types of traversal.

45,32,90,21,78,77,81,132,90,96,25,110,36

**Q.5**. Consider a scenario, where user has entered randomly into an array of user-defined size. Now he/she want to sort all the input in ascending form. The user has directed you to sort the number using **SELECTON SORT.**

**Q.6** If you have to choose between array and link list in your program what do you choose. Justify your answer with logical reasoning.

**Q.7** Write the code in JAVA to implement Double linked list in your program.

**Q.8** Imagine a class of 20 students of **Subject A**. Teacher has entered randomly marks of students. Now teacher wants to know who got the 2nd and 3rd highest marks in the class.

**Implement the above scenario in array of size 20.**

**Q.9** What is binary search tree? What is the possible maximum number of nodes in BST of depth d. Make a BST for the following sequence of numbers and traverse all types of traversal.

45,32,90,21,78,77,81,132,90,96,25,110,36

**Q.10** Describe the advantages of BST over Hashing. Also write a program to insert or delete an item from circular queue.