

**SUBJECT CODE NO: - B-2102**  
**FACULTY OF SCIENCE & TECHNOLOGY**  
**B.Sc. S.Y. (Sem-III)**  
**Examination November/December- 2022**  
**Computer Science Code -CS08**  
**Data Structures**

[Time: 1:30 Hours]

[Max. Marks:50]

N.B “Please check whether you have got the right question paper”

- 1) All questions are compulsory.
- 2) Illustrate with suitable diagram.

Q.1 a) What is data structure? Explain the data structure operation. 10

b) Write an algorithm to implement the bubble sort method. 10

**OR**

a) Explain the insertion and deletion of linked list with suitable example. 10

b) Explain the representation of two-dimensional arrays in memory. 10

Q.2 a) What is queues? Explain types of queues. 10

b) Explain the recursion with suitable example. 10

**OR**

Write short note on following (Any four) 20

a) Binary search

b) Priority queue

c) Underflow condition

d) Array traversal

e) Postfix operation

f) Quick sort

Q.3 Multiple choice questions: 10

1) Which of the data structure can't store the non-homogeneous data elements

- (a) Arrays      (b) Records      (c) Pointers      (d) None

2) The time factor when determining the efficiency of algorithm is measured by-----

- (a) Country microseconds      (b) Country the no of key operation  
(c) Country to no of statements      (d) Country the kilobyte of algorithm

- 3) To represent hierarchical relationship between elements which data structure is suitable---
- (a) Deque      (b) Priority      (c) Trees      (d) All of above
- 4) Linked list are best suitable-----
- (a) For relatively permanent collection of data  
(b) For the size and data structure are constantly changing  
(c) For both of above situation  
(d) For none of above situation
- 5) The memory address of the first element of an array is called-----
- (a) Floor address      (b) Foundation address  
(c) First address      (d) Base address
- 6) PUSH() and POP() functions are found in
- (a) Queues      (b) List      (c) Stacks      (d) Trees
- 7) A data structure where elements can be added or removed at either end but not in the middle-----
- (a) Linked list      (b) Stacks      (c) Queues      (d) Deque
- 8) What data structure you should use for dictionary searching and it should be capable of doing spell check also?
- (a) Array      (b) Hashing      (c) Linked list      (d) Tree
- 9) Which data structure allows deleting data elements from front and inserting at rear?
- (a) Stacks      (b) Queues      (c) Deque      (d) Binary search Tree
- 10) An algorithm that calls itself directly or indirectly as known as-----
- (a) Sus algorithm      (b) Recursion  
(c) Polish rotation      (d) Traversal algorithm