SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR

ROLL NO | | | | | | | | | | | | | :Total number of pages:[01]

Total number of questions:06

B.Tech. -CSE/ 3rd Sem

Data Structures

Subject Code:BTCS-304A

Paper ID :

Time allowed: 3 Hrs Max Marks:60

Important Instructions:

- **Al l questions are compulsory**

PART A (10 x 2 marks)

Q. 1. Answer in brief:

(a) What do you mean by garbage collection?
(b)Define heap sort.
(c)What is degree of a tree?
(d)What are advantages of double linked list over single linked list?
(e)Define circular queue.
(f)Differentiate between linear and non-linear data structures.
(g)Define B-tree.
(h)What is recursion?
(i)What are different applications of graph?
(j)Explain term front and rear for queue.

PART B (5×8 marks)

Q. 2. Explain conversion from infix to postfix representation with the help of suitable example.

OR

Briefly explain concept of circular queue and priority queue with help of suitable example. CO4

Q. 3. How arrays are stored in memory? Explain column major representation of an array.

OR

How array elements are accessed in multi-dimensional array? CO1

Q. 4. What do you mean by complexity of an algorithm? How it is calculated? Explain.

OR

Describe BigO notation used in algorithms. CO2

Q5. Write an algorithm to find a number using binary search.

OR

Write an algorithm to sort an array using Bubble sort. CO5

Q6. How does choice of data structure impact the performance of program?

OR

Explain a) Depth first search b) Breadth first search CO3