K23U 3417

Reg. No. : .....

Name : .....

III Semester B.Sc. Degree (C.B.C.S.S. – O.B.E. – Regular/Supplementary/ Improvement) Examination, November 2023
(2019 to 2022 Admissions)
CORE COURSE IN COMPUTER SCIENCE
3B04CSC : Data Structures

Time : 3 Hours Max. Marks : 40

PART – A
(Short Answer)

Answer **all** questions : **(6×1=6)**

1. List any one advantage of circular queue.
2. What do you mean by FIFO ?
3. Define complete binary tree.
4. Define path matrix.
5. Give the constraints to be satisfied by the given array to apply the binary search algorithm.
6. "Selection sort algorithm is not belonging to the category of divide and conquer." Comment on this statement with enough justification.

PART – B
(Short Essay)

Answer **any 6** questions : **(6×2=12)**

7. List the different applications of stack.
8. Write a note on garbage collection.
9. What is an array ? Give an example.
10. Write a short note on the representation of binary trees in memory.

P.T.O.

11. Explain DFS with an example.

12. Differentiate between algorithm and pseudo code.

13. Compare and contrast linear search and binary search algorithm.

14. How will you measure the running time of a program ?

PART – C
(Essay)

(4×3=12)

Answer **any 4** questions :

15. Explain polynomial addition with an example.

16. Write down the procedure to pop an element from a queue.

17. Briefly explain heap sort.

18. Define graph. What do you mean by graph traversal ?

19. Briefly explain asymptotic notations.

20. Elaborate the working of bubble sort algorithm with the given set of elements 10, – 1, 23, 90, 67, 0, 24.

PART – D
(Long Essay)

(2×5=10)

Answer **any 2** questions :

21. Explain merge sort algorithm with a suitable example.

22. Explain various operations on graph with examples.

23. What is binary search tree ? Explain the algorithm for searching and insertion of an item into a binary search tree.

24. What is a linked list ? How will you insert a new node to a specified position in a linked list ?

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