K23U 0443

Reg. No. : .....

Name : .....

VI Semester B.C.A. Degree (CBCSS – OBE – Regular/Supplementary/ Improvement) Examination, April 2023
(2019 and 2020 Admissions)
Core Course
6B17BCA : DESIGN AND ANALYSIS OF ALGORITHM

Time : 3 Hours Max. Marks : 40

PART – A
Short Answer

Answer **all** questions : (6×1=6)

1. What is an algorithm ?
2. What are recurrence relations ?
3. What is Amortized analysis ?
4. What is backtracking ?
5. Explain the big Oh notation.
6. What are the steps in the Substitution Method ?

PART – B
Short Essay

Answer **any 6** questions : (6×2=12)

7. Explain the RAM model implementation in the analysis of algorithms.
8. What are the steps involved in Master's theorem ?
9. What is dynamic programming ?
10. What are the types of problem in backtracking ?
11. Define the terms Best case, Worst case and Average case time complexities.
12. What are the steps in developing an algorithm ?
13. What is the Quick sort algorithm ? What is its worst case complexity ?
14. What is knapsack problem ?

P.T.O.

PART – C
Essay

Answer **any 4** questions : **(4×3=12)**

15. Explain the 8-Queens problem with example.
16. Write and explain Brute force string matching algorithm.
17. Compare breadth first search and depth first search techniques.
18. Define algorithm for binary search.
19. How to find optimal solution using Greedy algorithm ?
20. Write the algorithm for Strassen's matrix multiplication.

PART – D
Long Essay

Answer **any 2** questions : **(2×5=10)**

21. Explain the types of substitution to solve recurrence relation.
22. Describe the Knuth-Morris-Pratt matching algorithm with example.
23. Solve $T(n) = 2T(n/2) + n$ using Master's theorem.
24. Explain Kruskal's algorithm with an example.