K25U 0284

Reg. No. : .....

Name : .....

VI Semester B.C.A. Degree (C.B.C.S.S. – O.B.E. – Regular/Supplementary/ Improvement) Examination, April 2025
(2019 to 2022 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. Describe the nature of solutions in algorithm development.
2. How does the choice of data structures influence algorithm design ?
3. What is meant by Backtracking ?
4. What is meant by growth of Functions ?
5. Explain Case 1 of Master's Theorem.
6. Explain how Prim's algorithm works.

PART – B
(Short Essay)

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

7. Explain the key steps in developing an algorithm.
8. Discuss the Brute Force approach with an example.
9. Define Branch and Bound technique.
10. Explain cost estimation on key operations.
11. Briefly explain dynamic programming.
12. Define Theta notation in brief.

P.T.O.

13. How does the recursion tree method help to solve recurrences ?

14. In Kruskal's algorithm, how are edges selected to form a spanning tree ?

PART – C

(Essay)

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

15. Define RAM model of computation and why is it used ?

16. Describe the divide-and-conquer approach with example.

17. Explain the various Asymptotic notations.

18. Describe the various types of cost estimations.

19. What is the substitution method ?

20. What is Huffman coding and in which scenarios it is used ?

PART – D

(Long Essay)

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

21. Explain the significance of considering device capabilities before designing an algorithm.

22. Define Greedy approach with example.

23. Explain the various Graph Problems.

24. What is Strassen's algorithm and what problem does it solve ?