Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 18

B.Tech (CSE) (Sem.–5)

DESIGN AND ANALYSIS OF ALGORITHM

Subject Code : CS-307

Paper ID : [A0467]

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Answer briefly :

1. Are the sub solutions overlapping in dynamic programming approach?
2. What is asymptotic analysis? Why are asymptotic notations important?
3. What do you understand by Divide and Conquer Strategy?
4. What are NP class problems?
5. What are the advantages of recursion?
6. Define the travelling salesperson problem.
7. Do greedy algorithms always provide optimal solution? Justify your answer.
8. What are the deterministic algorithms?
9. What is a minimal spanning tree?
10. State the general principle of greedy algorithm.

SECTION-B

11. What do you analyze in an algorithm? What is the running time of an algorithm? How is it determined? Explain with example.

12. Distinguish between deterministic and non-deterministic algorithms.

13. What is dynamic programming? How is this approach different from recursion? Explain.

14. How does backtracking work on the 8 Queens problem with suitable example?

15. What is NP Completeness? Is P = NP? Explain.

SECTION-C

16. Order the following functions by growth rate : N, $N^{1.5}$, N^2 , N log log N , N $\log^2$ N, N log (N^2), 2/N, 2^N, $2^{N/2}$, 37, N^2 log N, N^3. Indicate which functions grow at the same rate?

17. What is the relationship among the NP, NP-Hard, NP-Complete and P problems? Explain.

18. Compare the various programming paradigms (such as Greedy, divide-and-conquer, dynamic programming etc.)