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

Total No. of Questions : 18

B.Tech. (CSE) (2018 Batch) (Sem.–4)
DESIGN & ANALYSIS OF ALGORITHMS
Subject Code : BTCS-403-18
M.Code : 77629

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

Answer briefly :

1. "*Asympotic notation Ω is transitive*". Justify.

2. Define P and NP class problem.

3. Give recurrence relation in general for computing complexity of divide and conquer algorithm.

4. Define live node and dead node.

5. Solve the recurrence equation $T(n) = 9\,T(n/3) + n$.

6. What is flow network?

7. What is time and space complexity?

8. Define dynamic programming approach.

9. Write any algorithm to find shortest path.

10. What is Cook's theorem?

SECTION-B

11. Explain the term Algorithm with its characterstics.

12. What is Knapsack problem? Justify that "*All optimal solutions will fill the knapsack exactly*".

13. Explain the general method of Branch and Bound.

14. Give a set S=<1, 4, 5, 6, 7, 3> and W=12. Obtain the sum of subset using backtracking approach.

15. Define flow network and write an iterative Ford-Fulkerson's method for solving Max- Flow problem.

SECTION-C

16. Explain Depth First Search and Breadth First Search method with example.

17. Explain Greedy method with suitable example.

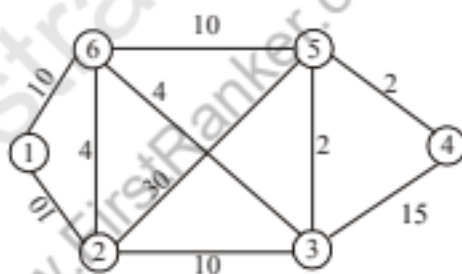18. Find the minimum spanning tree for the graph given below :

FIG.1

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.