Roll No……..….. **Total No. of Printed Pages: [01]**
Total No. of Questions: [11]

MCA (Semester – 3rd)
DESIGN AND ANALYSIS OF ALGORITHMS
Subject Code: MCAPS1-302
Paper ID: [20270115]

Time: 03 Hours **Maximum Marks: 60**

Instruction for candidates:

1. Section A is compulsory. It carries 16 marks. It consists of 4 questions of 4 marks each.
2. Section B consist of 4 questions of 8 marks each. The student has to attempt any 3 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A **(4 marks each)**

Q1. What is the importance of Asymtotic Notation?

Q2. What is shortest path finding problem?

Q3. What is meant by lower bound on sorting?

Q4. What is Brute force approach?

Section – B **(8 marks each)**

Q5. Give an algorithm that follows Divide-and-conquer.

Q6. Explain how will you use Prim's algorithm.

Q7. Use bubble sort on the array: {16, 2, 4, 1, 15}.

Q8. Is Strassen's algorithm better?

Section – C **(10 marks each)**

Q9. What is DFS? How does DFS work?

Q10. What do you mean by NP-complete? Is Knapsack NP-complete? Justify.

Q11. How will you merge {12, 18, 23, 29} and {16, 30, 52, 66}?