

**MASTER OF TECHNOLOGY (COMPUTER ENGINEERING) (CBCS - 2015
COURSE)**

**M. Tech. (Computer Engineering) Sem-II :SUMMER- 2022
SUBJECT : ADVANCED COMPUTER ALGORITHMS**

Day : Thursday
Date : 28-07-2022

S-14141-2022

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N. B. :

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.
- 4) Use of non-programmable calculator is **ALLOWED**.
- 5) Assume suitable data, if necessary.

SECTION – I

Q. 1 What is algorithm? Define and explain different asymptotic notations. **(10)**

OR

Explain computational complexity of RAM programs. **(10)**

Q. 2 What do you mean by analyzing algorithm? Explain average and worst case analysis in detail. **(10)**

OR

Explain dynamic programming design technique with example. **(10)**

Q. 3 Explain quick sort algorithm and write its average and worst case analysis. **(10)**

OR

Write a detail note on All Pair Shortest Path algorithm with example. **(10)**

SECTION – II

Q. 4 Elaborate the Robin-Karp algorithm with example. **(10)**

OR

What is knapsack problem? Suppose, if you are given a knapsack that can carry a maximum weight of 60, there are 4 items with weight {20, 30, 40, 70,} and values {70, 80, 90, 200} what is maximum value of items you can carry using knapsack. **(10)**

Q. 5 Write a detail note on optimal Binary search tree. **(10)**

OR

List different algorithmic designing techniques. Explain branch and bound in detail. **(10)**

Q. 6 Explain NP-Hard and NP-complete algorithm in detail. **(10)**

OR

Describe the Satisfiability problem. Prove that whether it is NP-Hard or NP-complete problem. **(10)**

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