KUMARAGURU
college of technology
character is life

Register Number: …….

MCA DEGREE EXAMINATIONS: DEC 2014

(Regulation 2013)

Second Semester

MASTER OF COMPUTER APPLICATIONS

P13CAT203**:** Design and Analysis of algorithms

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

1. What are combinational problems?
2. Define algorithm. List the methods of specifying an algorithm.
3. How does divide-and-conquer work?
4. What are the basic properties of greedy approach?
5. What is optimal binary search tree?
6. State principle of optimality.
7. What is state-space tree?
8. Define the terms: feasible solution, optimal solution.
9. What is NP-complete problem?
10. Give some examples for NP-hard problems.

Answer any FIVE Questions:-

PART B (5 x 16 = 80 Marks)

Q.No:11 is Compulsory

11. (i) Explain the merge sort with an example. (10)
    (ii) Write Dijikstra's algorithm. (6)

12. (i) Explain the steps involved in algorithm analysis and design process. (8)
    (ii) With an example, explain the general plan for analyzing efficiency of recursive algorithms. (8)

13. (i) Write an algorithm for merge sort using divide-and-conquer approach. (8)

(ii) Explain the use of Prim's algorithm with an example. (8)

14. (i) Explain Floyd's algorithm with an example. (10)

(ii) Write an algorithm for computing a binomial coefficient. (6)

15. (i) What is subset-sum problem? Explain its algorithm with an example. (8)

(ii) Explain how to solve N-gueen problem using backtracking method. (8)

16. Discuss the approximation algorithms for the travelling salesman problem.

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