

Government Engineering College Aurangabad
Department of Computer science and Engineering
End Semester Examination-Nov/Dec 16

Class: ME(CSE) Course code:CS541 Course Title:Advanced Algorithms
Max Marks:60 Date: 28 NOV 2016 Time :3 Hr.

- Q.1 Distinguish between :-(Any three) (12)
- 1) P Complexity Class VS NP Complexity Class
 - 2) Traditional Matrix Multiplication VS Strassen's Matrix Multiplication
 - 3) Euclid's Algorithm Vs Extended Euclid's Algorithm's
 - 4) Job-Shop NP- Hard Scheduling Vs Flow Shop NP-Hard Scheduling.
- Q.2 Answer the following :-(any two) (12)
- 1) Discuss the performance measures for approximation algorithm and prove that steiner tree is ratio 2 approximation algorithm.
 - 2) Discuss NP Hard Code generation Problems.
 - 3) Prove that perfect matching is NP-Complete by reducing it from matching.
- Q.3 Answer the following :-(any two) (12)
- 1) Recurrence tree for Quicksort Algorithm
 - 2) Discuss modular arithmetic and Chinese remainder theorem.
 - 3) Prove that independent set is NP-Complete by reducing it from clique.
- Q.4 Solve the following:- (12)
- 1) illustrate Batchter's Bitonic Mergesort Algorithm for sorting the following numbers {17,64,89,34,72,51,03,91,15,70} and find it's time complexity.
 - 2) Illustrate Comparision tree for the following elements {10,08,35,26}
- Q.5 Write short notes on:-(any three) (12)
- 1) Polynomial time reductions.
 - 2) Complexity measures for parallel algorithms
 - 3) Satisfiability Problem
 - 4) Polynomial GCD.