

Total No. of Printed Pages:1

SUBJECT CODE NO:- H-1780
FACULTY OF ENGINEERING AND TECHNOLOGY
M.E. (Comp. Sci. & Engg.)
Advanced Algorithm
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.
 Attempt any two questions from each section.

N.B

Section A

- | | | |
|-----|--|----|
| Q.1 | a) Explain Activity selection Problem with example. | 10 |
| | b) How to measure Performance of an algorithm. Explain how to compute complexity of the following problem
(1) Binary Search Method
(2) Bubble Sort | 10 |
| Q.2 | a) Sort the set of numbers using Quick sort and comment on complexity.
30, 45, 25, 55, 50, 20, 80, 65, 60, 70. | 10 |
| | b) Explain Hiring problem using Probabilistic analysis & randomized algorithm. | 10 |
| Q.3 | a) Explain Maximum Bipertive Matching using suitable example. | 10 |
| | b) Solve the following recurrence relation using Master Method. | 10 |

$$T(n) = 4T\left(\frac{n}{2}\right) + n^2$$

Section B

- | | | |
|-----|---|----|
| Q.4 | a) Use extended Euclidean algorithm to find GCD (99,78) | 08 |
| | b) Show How FFT compute the DFT. | 12 |
| Q.5 | a) Prove that Feedback edge set problem is NP complete | 06 |
| | b) Prove that 3-SAT is Np complete | 07 |
| | c) Prove that vector cover is NP complete. | 07 |
| Q.6 | a) Explain Rabin Carp algorithm | 08 |
| | b) Multiply the polynomials
$A(x) = 7x^3 - x^2 + x - 10$
$B(x) = 8x^3 - 6x + 3$ | 06 |
| | c) Explain Cook's Theorem. | 06 |