

Total No. of Printed Pages:1

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

[Time: Three Hours]

[Max.Marks:80]

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

**Section A**

Q.1 a) Solve the following rod cutting problem using dynamic programming for a rod of length:4 10

Length	1	2	3	4	5	6	7	8
Price	1	5	8	9	10	17	17	20

b) Write an algorithm to sort elements using radix sort and compute the complexity of the algorithm. 10

Q.2 a) Explain divide & conquer strategy for quick sort and sort the following element using quick sort 30,50,20, 40, 60, 10, 80, 20,30. 10

b) Solve the following recurrence relation using master method 10  
 $T(n) = 4T\left(\frac{n}{2}\right) + n^2$

Q.3 a) Explain Activity Selection Problem with suitable example. 10  
 b) Explain maximum sub array problem using divide and conquer method 10

**Section B**

Q.4 a) Draw a Hamiltonian Circuit for following Boolean expression 10  
 $(x_1 + x_2 + x_3), (\overline{x_1} + x_2 + \overline{x_3}),$

$(x_1 + \overline{x_2} + \overline{x_3})$   
 b) Explain polynomial multiplication and division with suitable example 10

Q.5 (a) Explain Robin-Karp algorithm with an example. 08  
 (b) Explain vertex cover problem 06  
 (c) Find GCD (99,78) using extended Euclidean algorithm. 06

Q.6 a) Prove that Feedback edge set problem is Np Complete. 06  
 b) Draw a state transition diagram for the string matching automata Where P=ababaca and text T= ababa ba caba. 08  
 c) Discuss iterative FFT 06