AOH

QP Code : 3542 1/1

cs 4 sem analysis of algorithm jun 2015

(3 Hours) **[Total Marks : 80**

N.B. (1) Question No. **1 is compulsory.**
(2) Attempt any **three** from the remaining **five** question.
(3) Assume **suitable** data if **required.**

1. (a) Write abstract algorithm for greedy design method. **5**
   (b) Which are different factors considered for sorting elements. **5**
   (c) Explain flow shop scheduling technique. **5**
   (d) Explain three cases of master theorem. **5**

2. (a) Write and explain sum of subset algorithm for **10**
   $n = 5$, $W = \{2, 7, 8, 9, 15\}$ $M = 17$
   (b) Explain randomized version of Quick sort and derive its complexity **10**

3. (a) Implement the bubble sort Algorithm and derive its best case and worst case complexity. **10**
   (b) Find the Huffman code for the following message. **10**
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4. (a) What is Hamiltonian cycle ? Write an algorithm to find all Hamiltonian cycles. **10**
   (b) Suppose you are given n number of coins, in that one coin is faulty, its weight is less than standard coin weight. To find the faulty coin in a list using proper searching method. What will be the complexity of searching method. **10**

5. (a) Explain Job sequencing with deadliner for the given instance. **10**
   $n = 5$, $\{P_1, P_2, P_3, P_4, P_5\} = \{20, 15, 10, 5, 3\}$
   & $\{d_1, d_2, d_3, d_4, d_5\} = \{2, 2, 1, 3, 3\}$
   (b) Explain naive string matching algorithm with example. **10**

6. Write note on : (any **two**) **20**
   (a) Rabin karp algorithm
   (b) 15-puzzle problem
   (c) Travelling sales person problem
   (d) Strassen's matrix multiplication.
