CSIT772   Enrol. No. ....
[ET]

SUPPLEMENTARY EXAMINATION : JULY, 2018

DESIGN AND ANALYSIS OF ALGORITHMS

Time : 3 Hrs.   *Maximum Marks : 70*

Note: *Attempt questions from all sections as directed.*

SECTION – A   (30 Marks)
Attempt any **five** *questions out of* **six.**
Each question carries **06** *marks.*

1. Define Algorithm. Differentiate between Analysis of Algorithm and Design of Algorithm.

2. Describe the insertion of keys 5, 28, 19, 15, 20, 33, 12, 17, 10 into a Hash table with collision resolved with chaining. Assume the table has 9 slots and let the hash function be $h(k) = k \bmod 9$.

3. Outline the concept of Greedy Algorithms, Describe the Greedy algorithms used in Minimum Spanning Tree (MST).

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4. Arrange the List of elements in ascending order by the help of Merge Sort

$A = \{2, 8, 7, 1, 3, 5, 6, 4\}$

5. Explain the difference between Greedy Method Algorithms and Dynamic Programming Algorithms.

6. Estimate for String Matching working module q = 11, how many spurious hits does the Rabin-Karp matcher encounter in the Text T = 3141592653589793, when looking for the pattern P = 26?

SECTION – B (20 Marks)

Attempt any two questions out of three.
Each question carries 10 marks.

7. Explain the concept of Longest Common Subsequence. Find the LCS for the Sequences $X = (A,B,C,B,D,A,B)$ and $Y = (B,D,C,A,B,A)$.

8. Describe the classes P, NP, NP Complete. How can we show that a problem is NP Complete?

. (a) Write about Amortized Analysis ,discuss the common techniques used in amortized analysis. (6)

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(b) Write a note on String Matching techniques. (4)

SECTION – C (20 Marks)
(Compulsory)

10. (a) Write Mathematical defamations of Asymptotic notations Big-Oh, Big-Omega and Theta, explain them with the help of Graphs. (14)

(b) Describe a Binary Search Tree (BST) with the help of an example. (3)

(c) Define NP-Hard Problems, how is it related to a NP-Complete Problem. (3)

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