MCA.III/12.14.1119 Reg. No. | | | | | | | | |

A

MCA DEGREE III SEMESTER EXAMINATION DECEMBER 2014

CAS 2301 COMPUTER ALGORITHMS

(Regular and Supplementary)

Time: 3 Hours Maximum Marks: 50

PART A

(Answer *ALL* questions)

(15 x 2 = 30)

I. (a) Write a short note on the efficiency of algorithms.
(b) Write algorithm for constructing an AVL Tree.
(c) Explain about binomial heaps.

II. (a) Explain about task scheduling problem.
(b) Explain knapsack problem.
(c) Explain about Huffman codes.

III. (a) Explain topological sort.
(b) Discuss DFS with the help of example can be performed on a graph.
(c) Briefly explain strongly connected components.

IV. (a) Briefly explain about flow networks.
(b) Explain about inverted matrices.
(c) Discuss Kruskal's algorithm with relevant example.

V. (a) Explain computational complexity of quick sort.
(b) Write an algorithm to implement merge sort.
(c) Explain computational complexity of heap sort.

PART B

(5 x 4 = 20)

VI. Explain about data structures for disjoint sets.

OR

VII. Explain about binary search trees.

VIII. Explain about back tracking algorithms.

OR

IX. Explain about greedy algorithms.

X. Explain about branch and bound algorithms.

OR

XI. Explain about divide and conquer strategy with example.

XII. Explain about NP completeness problem in complexity theory.

OR

XIII. Write an algorithm of bubble sort. Illustrate with example.

XIV. Write an algorithm for matrix multiplication. Illustrate with example.

OR

XV. Explain about primality testing and integer factorization.

***