Code No. 2402 / N

FACULTY OF INFORMATICS

B.E. 3/4 (IT) II – Semester (New) (Main) Examination, April / May 2013

Subject : Design and Analysis of Algorithms

Time : 3 hours **Max. Marks : 75**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1. Define O, Omega and Theta. 3
2. What is Algorithm specification? 2
3. Write the control absorption of greedy strategy. 3
4. Define principle of optimality. 2
5. Explain O/I knapsack. 3
6. State traveling salesperson's problem. 2
7. What is Hamiltonian cycles? 2
8. Define Biconnected component. 2
9. What is node covering problem? 3
10. State cooks theorem. 3

PART – B (50 Marks)

11.a) Briefly explain how to analysis algorithm. 3
b) What is a heap? How to delete an element from heap write the algorithm and analyse it. 7

12.a) Write a greedy algorithm for sequencing unit time jobs with deadline and profits. 5
b) Describe merge sort algorithm and explain with an example. 5

13.a) Explain reliability design problem with an example. 7
b) Explain optimal binary search trees. 3

14.a) Write a recursive backtracking algorithm to find all the Hamiltonian cycles of a given graph. 5
b) Explain how the branch and bound technique can be used to solve O/I knapsack problem. 5

15. Explain 8-Queen's problem with an example. 10

16.a) Explain Branch and Bound technique. Give an example. 5
b) Explain NP hard graph problem. 5

17. Write short notes on :
a) All pair shortest path 4
b) Optimal storage on tapes 3
c) Graph coloring 3

******