22/11/17 AN

Reg. No. :

Question Paper Code : 50388

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2017
Third/Fourth Semester
Computer Science and Engineering
CS 6402 – DESIGN AND ANALYSIS OF ALGORITHMS
(Common to Information Technology)
(Regulations 2013)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A (10×2=20 Marks)

1. How to measure an algorithm's running time ?
2. What do you mean by "Worst case-efficiency" of an algorithm ?
3. Give the general plan of divide and conquer algorithms.
4. Write the advantages of insertion sort.
5. What does Floyd's algorithm do ?
6. Define principle of Optimality.
7. What are Bipartite Graphs ?
8. State extreme point theorem.
9. Explain promising and nonpromising node.
10. Differentiate feasible solution and optimal solution.

PART – B (5×13=65 Marks)

11. a) Discuss the steps in Mathematical analysis for recursive algorithms. Do the same for finding the factorial of a number.

(OR)

b) What are the Rules of Manipulate Big-Oh Expressions and about the typical growth rates of algorithms ?

12. a) Explain the Bruteforce method to find the two closest points in a set of n points in k-dimensional space.

(OR)

b) Explain the working of Merge Sort Algorithm with an example.

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13. a) Explain the working of Prim's Algorithm.

(OR)

b) Explain the Dijkstra's shortest path algorithm and its efficiency.

14. a) List the steps in Simplex Method and give the efficiency of the same.

(OR)

b) What is stable marriage problem ? Give the algorithm and analyze it.

15. a) Find the Optimal solution using Branch and Bound for the following assignment problem.

	Job1	Job 2	Job 3	Job 4
A	9	2	7	8
B	6	4	3	7
C	5	8	1	8
D	7	6	9	4

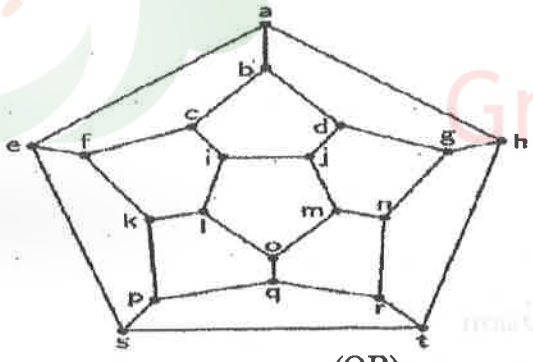
(OR)

b) Give the methods for Establishing Lower Bounds.

PART – C **(1×15=15 Marks)**

(Application/Design/Analysis/Evaluation/Creativity questions) (Case Study/ Comprehensive questions)

16. a) Find a Hamiltonian circuit or disprove its existence in the graph given below.



(OR)

b) Explain the steps in Building a Huffman Tree. Find the codes for the alphabets given below according to the frequency.

– (Space)	4
A	2
E	5
H	1
I	2
L	2
M	2
P	2
R	1
S	2
X	1