Total No. of Questions : 8]

SEAT No. :

P4860

[Total No. of Pages : 2

[5060] - 801
M.E. (Computer Engineering)(Semester - I)
APPLIED ALGORITHMS
(Pattern : 2013)

Time : 3 Hours] *[Max. Marks :50*

Instructions to the candidates:

1) ***Answer any five questions.***
2) ***Figures to the right indicate full marks.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Assume suitable data, if necessary.***
5) ***Use of calculator is allowed.***

Q1) a) What are the Important characteristics of an Algorithm? **[5]**

b) Discuss the Empirical measurements of performance of algorithms. **[5]**

Q2) a) Define asymptotic notations. Explain their signification in analyzing algorithms. **[5]**

b) Write about the Best-case, Average-case, and Worst-case analyses of Insertion sorting algorithm. **[5]**

Q3) a) Describe all pair shortest path Algorithm in graph. **[5]**

b) Which are O (n log n) sorting algorithms. **[5]**

Q4) a) Explain Prim's Algorithm for minimum spanning tree. **[5]**

b) Write about Greedy Kruskal's minimum spanning tree algorithm. **[5]**

Q5) a) Write the Red-Black Trees. **[5]**

b) Which are different Approximation scheme? **[5]**

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Q6) a) Explain the algorithm of Binary Search. **[5]**

b) What are the basic properties of Line, Intersection of Line and Line Segment? **[5]**

Q7) a) State and Explain Application of Knapsack Problem. **[5]**

b) Explain simplex method of LPP with example. **[5]**

Q8) a) Write short note on Epsilon Approximation. **[5]**

b) Consider the LP problem **[5]**

Maximize $Z = 15x_1 + 10x_2$

Subject to the constraints

i) $4x_1 + 6x_2 <= 360$

ii) $3x_1 <= 180$

iii) $5x_2 <= 200$

$x_1, x_2 >= 0$

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