Total No. of Questions : 8]

SEAT No. :

P4184

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M.E. (Computer Engineering)

APPLIED ALGORITHMS

(2013 Pattern) (Semester - I) (510101)

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

Instructions to the candidates:

1) ***Attempt 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) State whether following equalities are true or false and prove it. **[5]**

i) $2n^2 + 3n + 1 = 2n^2 + \theta(n)$

ii) $2n^2 + \theta(n) = \theta(n^2)$

b) Explain characteristics of algorithm with suitable example. **[5]**

Q2) a) Explain asymptotic notations with example. **[5]**

b) Explain the Best, Average, and Worst case of any one sorting algorithm. **[5]**

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

b) Write about the Epsilon approximation algorithm. **[5]**

Q4) a) Explain Krushkal's algorithm for minimum spanning tree. **[5]**

b) Write about approximation version of Knapsack algorithm. **[5]**

Q5) a) Discuss Graham scan and Jarvis march algorithm. **[5]**

b) Write the Approximation Vertex cover algorithm. **[5]**

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Q6) a) Explain the standard and slack forms of linear programming. **[5]**

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

Q7) a) Explain Bay's rule with example. **[5]**

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

Q8) a) What are uncorrelated variables and transform methods. **[5]**

b) Explain Exception, Moments and variance with example. **[5]**

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