Total No. of Questions : 12]

B.E. Comp Sem-I
Nov-Dec-2012

SEAT No. :

P917

[Total No. of Pages : 3

[4264] - 691

B.E. (Computer Engg.)
DESIGN AND ANALYSIS OF ALGORITHMS
(2008 Pattern) (Sem. - I)

Time : 3 Hours]
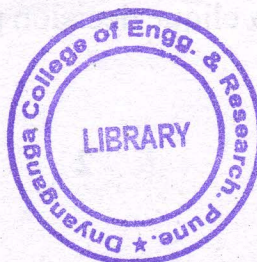
[Max. Marks : 100

Instructions to the candidates :

1) Answer 3 questions from Section - I and 3 questions from Section - II.
2) Answers to the two sections should be written in separate books.
3) Neat diagrams must be drawn wherever necessary.
4) Figures to the right indicate full marks.
5) Assume suitable data, if necessary.

SECTION - I

Q1) a) What is divide and conquer strategy? Explain an algorithm for quick sort. State its time complexity. **[10]**

b) Define the following : **[6]**

   i) Big "oh".
   ii) Theta.
   iii) Omega.

c) What is the difference between Prim's and Kruscal's technique for minimum spanning tree. **[2]**

OR

Q2) a) Solve the following job sequencing problem (maximizing the profit by completing jobs before their deadlines) using greedy algorithm.

N (Number of jobs) = 4

Profits associated with jobs $(P_1, P_2, P_3, P_4) = (100, 10, 15, 27)$. Deadlines associated with jobs $(d_1, d_2, d_3, d_4) = (2, 1, 2, 1)$. **[8]**

b) Explain the different ways of measuring the running time of an algorithm. **[6]**

c) Prove by contradiction that

"There exist two irrational numbers x and y such that x^y is rational. **[4]**

P.T.O.