

Total No. of Questions : 6]

SEAT No. :

**P538**

[Total No. of Pages : 2

**APR - 18/TE/Insem. - 140**

**T.E. (Computer)**

**DESIGN & ANALYSIS OF ALGORITHMS**

**(2015 Pattern) (Semester - II) (310250)**

*Time : 1 Hour]*

*[Max. Marks : 30*

*Instructions to the candidates:*

- 1) *Answer three questions.*
- 2) *Figures to the right indicate full marks.*
- 3) *Assume suitable data, if necessary.*

**Q1) a) Write a short note on the evolution of Algorithm? [5]**

b) How to confirm the correctness of Algorithm? Explain with example. [5]

OR

**Q2) a) How can you measure and increase the efficiency of an Algorithm? [5]**

b) Explain characteristics of good algorithm? List out the problems solved by the Algorithm? [5]

**Q3) a) Explain Functional Model. Define features of Functional Model? [5]**

b) Explain recursive and iterative process with example? [5]

OR

**Q4) a) Explain tail recursion with suitable example? [5]**

b) Obtain a set of optimal Huffman codes for the messages (M1 .... M6) with relative frequencies  $(q_1 \dots q_6) = (5, 9, 12, 13, 16, 45)$  draw the decode tree for this set of codes? [5]

**P.T.O.**

**Q5) a)** What is meant by divide and conquer strategy? Name few problems that can be solved using divide and conquer? [5]

b) Explain basic steps of genetic algorithm? [5]

OR

**Q6) a)** Consider a knapsack instance  $n = 3$ ,  $(w_1, w_2, w_3) = (2, 3, 4)$ ,  $(p_1, p_2, p_3) = (1, 2, 5)$  and  $M = 6$ . Find optimal solution using dynamic programming? [5]

b) Write a short note on Tabu search? [5]

