Hall Ticket No: | | | | | | | | | | | **Question Paper Code :**

ANIL NEERUKONDA INSTITUTE OF TECHNOLOGY & SCIENCES
(AUTONOMOUS)

M.E/M.Tech I-Semester Regular Examinations, November 2015

Theory of Computation

(Computer Science & Technology)

Date: **Time: 3 hours** **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

Unit-1

1. a) Explain Two-Way Finite Automata? (4M)
   b) Take one example how to minimize the DFA? (8M)

(OR)

2. a) Explain applications of Finite Automata? (4M)
   b) Explain with one example how to convert NFA with epsilon to without epsilon? (8M)

Unit-2

3. a) For the RE given below obtain NFA without E-morg (0+1)*(00+11) (4M)
   b) Design Moore machine that accepts all the strings of 0's & 1's treated as binary integer number return a reminder '1' when divided by '3'. (8M)

(OR)

4. a) Explain Algebraic laws of Regular Expression? (4M)
   b) Define applications Regular Expression? (8M)

Unit-3

5. a) Define Push Down Automata? (4M)
   b) State and Prove Pumping Lemma for Regular Languages and CFL? (8M)

(OR)

6. a) Let G be the Grammar given by (4M)

   S ->Aabb/Aaa
   A->Abb/A
   B->bBB/A.

   Construct the PDA that accepts the Language that generated by G.

   b) Design a GNF grammar for CFG S->AA/0 (8M)
   A->SS/1

Unit-4

7. Explain CNF with example? (12M)

(OR)

8. Discuss decision Properties of CFL? (12M)

Unit-5

9. a) Explain Universal Turing Machine? (4M)
   b) What is TM? Construct TM to add two given integers? (8M)

(OR)

10. a) What is PCP? Explain with example? (4M)
    b) Explain restricted Turing Machine? (8M)