Q.P. Code: 16CS517 **R16**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Regular & Supplementary Examinations Nov/Dec 2019

FORMAL LANGUAGES AND AUTOMATA THEORY

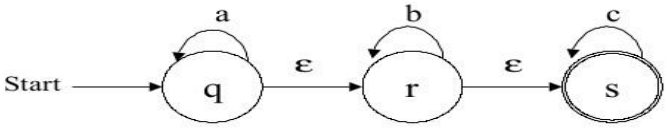
(CSE & CSIT)

Time: 3 hours Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1 Convert the following NFA with ε moves to DFA without ε moves. **12M**



OR

2 a Define Finite Automaton. **4M**

b Show that (0*1*)* = (0+1)*. **8M**

UNIT-II

3 Construct an equivalent FA for the given regular expression (0+1)*(00+11)(0+1)* **12M**

OR

4 State Arden's theorem and construct the regular expression for the following FA using Arden's theorem. **12M**

UNIT-III

5 Explain how equivalence between two FA is verified with an example. **12M**

OR

6 Prove that the language L= $\{a^n b^n \mid n>=1\}$ is not regular using pumping lemma with procedure. **12M**

UNIT-IV

7 Construct a PDA which recognizes all strings that contain equal number of 0's & 1's. **12M**

OR

8 Define Instantaneous description (ID) in PDA. **12M**

UNIT-V

9 Explain conversion of regular Expression to TM with example. **12M**

OR

10 Explain the various types of Turing machine. **12M**

*** END ***