 **DARBHANGA COLLEGE OF ENGINEERING**

**(**Established under AICET Act, \_\_\_\_\_)

**Department of Computer Science and Engineering**

**FORMAL LANGUAGE AND AUTOMATA THEORY**

**(051611)**

**Assignment**

(1) Construct a DFA to accept empty language.

(2) Differentiate between deterministic and nondeterministic PDA.

(3) Construct minimal DFA for w Ꜫ (a,b)\* such that L1={na(w)mod3=0}and

L={nb(w)mod2=0}.

(4) Design minimal Deterministic Finite Automata to find out total number of state if w Ꜫ (a,b)\*where

a) |w|=2 [Exactly two symbol]

b) |w|>=2 [At least two symbol]

c) |w|<=2 [At most two symbol]

(5) Construct minimal DFA if w Ꜫ (a,b)\* for the language containing all string starts and ends with different symbol.

(6) Write the difference between Pushdown Automata and Turing Machine.

(7) Define multi head Turing Machine, multi dimensional Turing Machine.

(8) Define Chomsky hierarchy of languages.

(9) Define Universal Turing Machine.

(10) Define Rice’s theorem.

(11) Define Turing machine halting problem.

(12) Construct a Turing Machine that gives two’s complement for the given binary representation.

(13) Construct a Turing Machine which shift non block symbols 2 cells to the right.

(14) Explain individually classes P and NP.

(15) Write short notes on NP complete, NP hard problems.