**BTECH(CS) IV Semester Sessional Examination, FEB 2017**

**Subject Name: Theory of Computation**

**Duration: 1:30 hr. Max Marks: 50**

**Section A**

**(Short Answer Type) 5 questions of 10 marks each (any 3) 30**

1. Draw Chomsky Hierarchy with grammar, language and automata used.

2. Give description of automata theory.

3. Prove by Mathematical induction 1 + 3 + 5 + 7 + ... + 2n-1 = n2

4. Determine string acceptability of 01100 using transition function for below automata. Draw Transition table.



5. Define alphabet, string, language, grammar. Define Pigeon hole principle.

**Section B**

**(Long Answer Type) 2 questions of 20 marks each (any 1) 20**

1. Prove by Mathematical induction 12+22+32+42+………+n2 = n(n+1)(2n+1)/6

2. Construct a DFA equivalent to the NFA given below:



*TEAR FROM HERE*

**BTECH(CS) IV Semester Sessional Examination, FEB 2017**

**Subject Name: Theory of Computation**

**Duration: 1:30 hr. Max Marks: 50**

**(Short Answer Type) 5 questions of 10 marks each (any 3) 30**

1. Draw Chomsky Hierarchy with grammar, language and automata used.

2. Give description of automata theory.

3. Prove by Mathematical induction 1 + 3 + 5 + 7 + ... + 2n-1 = n2

4. Determine string acceptability of 01100 using transition function for below automata. Draw Transition table.



5. Define alphabet, string, language, grammar. Define Pigeon hole principle.

**Section B**

**(Long Answer Type) 2 questions of 20 marks each (any 1) 20**

1. Prove by Mathematical induction 12+22+32+42+………+n2 = n(n+1)(2n+1)/6

2. Construct a DFA equivalent to the NFA given below:

