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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-1 EXAMINATION- September, 2018

M. Tech III Semester / I Sem

COURSE CODE: 15M1WCI331   MAX. MARKS: 15

COURSE NAME: Advanced Theory of Computation

COURSE CREDITS: 3   MAX. TIME: One Hour

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

1. Prove that if L be a set accepted by a nondeterministic finite automaton then there exists a deterministic finite automaton that accepts L. (CO1)   **[3 marks]**

2. Construct an NFA for regular expression 01*+1. (CO1)   **[4 marks]**

3. Give/draw DFA accepting the set of all strings such that every block of five consecutive symbols contains at least two 0's. (CO1)   **[4 marks]**

4. Describe pumping leema for regular sets. Check the following for regular or not regular? The set L = {0^{i^2} | I is an integer , i>=1}, which consists of all strings of 0's whose length is a perfect square. (CO1)   **[4 marks]**