Dr. Himanshu

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3 EXAMINATION- DECEMBER, 2019

M. Tech I Semester

COURSE CODE: 15M1WCI331   MAX. MARKS: 35

COURSE NAME: Advanced Theory of Computation

COURSE CREDITS: 3   MAX. TIME: Two Hours

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

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1. Given the grammar $S \rightarrow AB$, $A \rightarrow a$, $B \rightarrow C \mid b$, $C \rightarrow D$, $D \rightarrow E$, $E \rightarrow a$. Find the left and right derivation tree for the above grammar.   [3 marks]

2. Reduce the above grammar as in Q.1 into Chomsky Normal form having no unit and null productions.   [8 marks]

3. Reduce the above grammar as in Q.1 into Griebach Normal form with no unit and null productions.   [8 marks]

4. Describe the above grammar to mealy and moore machine reductions with its state chart and transition tables.   [10 marks]

5. Describe the terms –

   a. Push down automata

   b. Context free grammar

   c. Context free language

   d. Decidability constraints

   e. Regular grammar

   f. Linear bounded automata   [1*6 = 6 marks]