Roll No. .....

24266

B. Tech. 5th Semester (CSE) Examination – March, 2021

THEORY OF AUTOMATA COMPUTATION

Paper : CSE-305-F

Time : Three Hours] *[Maximum Marks : 100*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt ***five*** questions in all, selecting ***one*** question from each Unit. Question No. **1** is ***compulsory***. All questions carry equal marks.

1. Write short note on following : 20

(i) DFA

(ii) GNF

(iii) Turing Machine

(iv) Unrestricted Grammar

UNIT – I

2. Define DFA and NDFA. Explain equivalence of DFA and NDFA. Also describe conversion of NFA to DFA. 20

3. Describe the concept of Basic Machine. Explain in detail about Moore and Mealymachines. 20

UNIT – II

4. Explain the following : 20

   (i) Applications of Pumping Lemma

   (ii) Closure Properties of Regular Sets

5. Explain the following : 20

   (i) Removal of useless symbols

   (ii) Reduced forms

UNIT – III

6. Give a complete description about Pushdown Automata. 20

7. Explain the following : 20

   (i) Halting Problem of Turing Machine

   (ii) PCP Problem

UNIT – IV

8. What do you mean by Chomsky hierarchy ? Explain in detail. 20

9. Give a complete description about Primitive Recursive Functions. 20
