AJEENKYA
D Y PATIL UNIVERSITY

End Term Examinations (April/May 2019)

School : School of Engineering **Program:** B.Tech. Computer Engineering

Course: Theory of Computation **Course Code**: CSC 245

Semester: IV **Max Marks:** 50 **Duration (mins) :** 120

Q1. ATTEMPT ANY FIVE FROM THE FOLLOWING.

EACH QUESTION CARRIES 10 MARKS :

a) Define the following with example:
   a. Transition Function and Transition state
   b. What is alphabet, how to derive language from given alphabet set.
   c. Define State & its types with symbolic representation.
   d. What is Complexity? State types of complexity in computation.
   e. What is kleen closure and kleen plus.

b) State and prove equivalence of NFA and DFA.

c) What is Chompsky classification of grammar? Explain the hierarchy with use of the diagram and table.

d) Give formal definition of Pushdown Automata (PDA). State components of PDA, using diagram. Also draw and explain Graphical notation of PDA.

e) Given Alphabet set Σ = {0,1}
   a. Design DFA to accept only if string starts with 00 and ends with 1.
   b. Design DFA to accept string with string length (w) >= 3.

f) Design a Turing machine for Alphabet set Σ = {0,1} to accept string with following grammar
   a. 10*11
   b. 001*0*1