Nirma University

B. Tech. Sem-VI (CSE)

Sub: 2CS601 Theory of Computation

Class Test – Feb 2021

Roll/ Exam No.		Supervisor's initial with date	
Total Marks: 35		18-02-2021, 10:45 am to 12 noon	

Instructions:

- Right side indicates the marks
- All questions are compulsory and assume suitable data wherever required

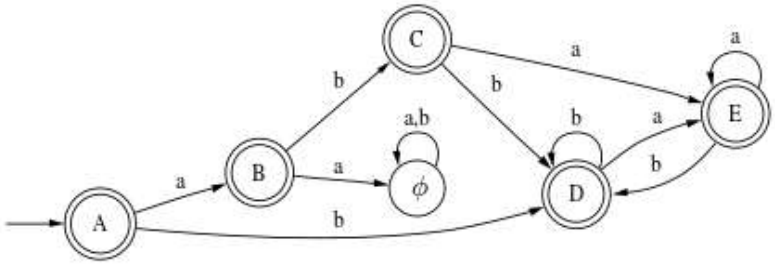
Q-1 Write the regular expression for the language over ∑ = {0, 1} such that it accepts the following: [5] CLO1

a. Language which accepts strings that contains 00 or 11 as a substring.
b. Language which accepts all even length strings.
c. Set of strings that doesn't contains consecutive 00.
d. Set of strings that starts and ends with the same symbol.
e. The language of all strings containing both 11 and 010 as substrings

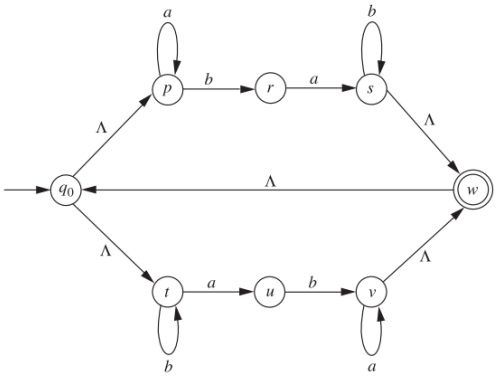
Q-2 For the following RE, draw a deterministic FA recognizing the corresponding language. [6] CLO2

(11+110)*0

Q-3 Minimize the following FA: [6] CLO2



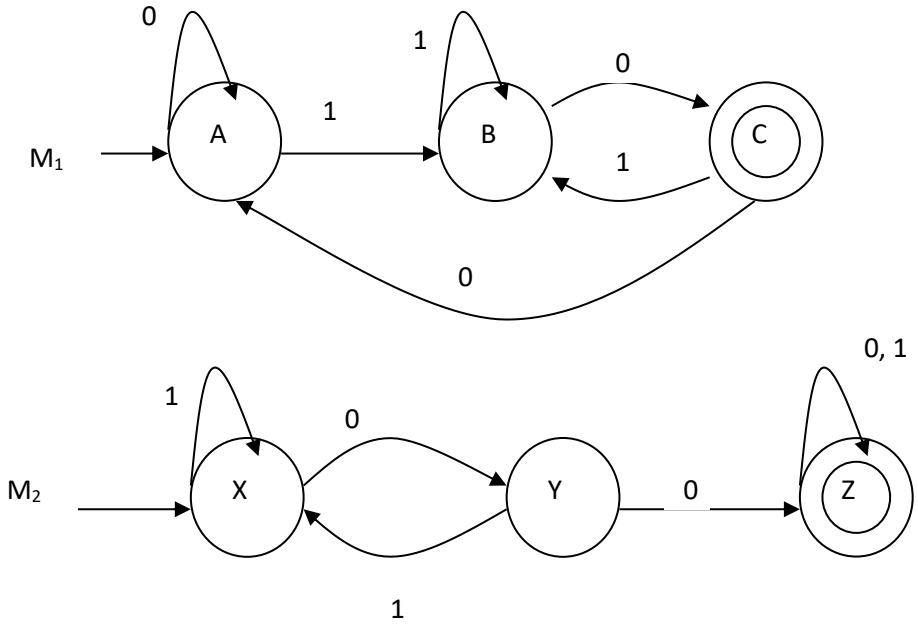
Q-4 Convert the below NFA-Λ to corresponding DFA, Starting state is q_0 and Accepting State is w. [6] CLO3



Q-5 [6] CLO2

1. Write the recursive definition for set of even palindromes over ∑=(0,1)*
2. Using Principle of Mathematical Induction, prove that for any n>=4, n!>2n

Q-6 For the following two FAs, Find L_1 U L_2 and $L_1 - L_2$. [6] CLO3



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