

CO-303 THEORY OF COMPUTATION

Time: 1:30 Hours

Max. Marks: 25

Note: Attempt all questions. Assume suitable missing data, if any

Q.No. 1

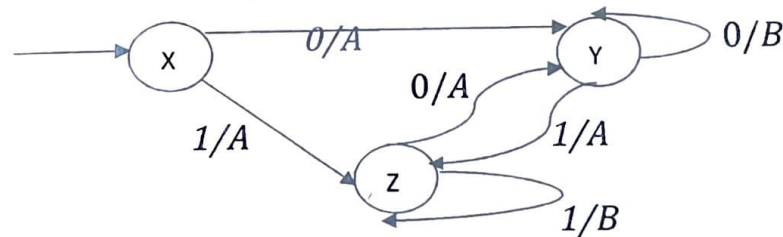
[5] CO1

Explain equivalence of two finite Automata with suitable example and Design a DFA for strings of 0's and 1's where all binary strings are divisible by 3.

Q.No. 2

[5] CO1

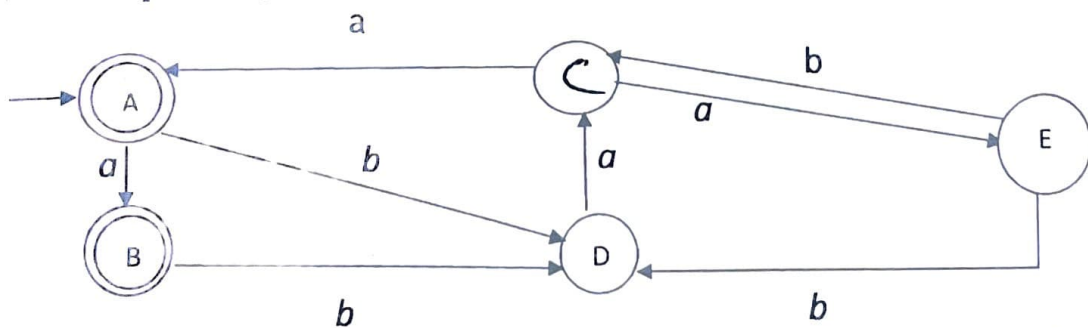
Construct a Moore machine equivalent to the following mealy machine



Q.No. 3

[5] CO2

What is Arden's theorem? Find a regular expression (RE) corresponding to the following FA using Arden's theorem.



Q.No. 4

[5] CO2

What is chomsky's classification for the grammar? Design a Context Free Grammar (CFG) which accepts the language $L = \{0^i 1^j 0^k | j > i + k\}$.

Q.No. 5

[5] CO3

What is pumping lemma for regular expression? Show that the language $L = \{0^i 1^i | i \geq 1\}$ is not regular.