

CO-204 THEORY OF COMPUTATION

Time: 1:30 Hours

Max. Marks: 25

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

Q.No. 1

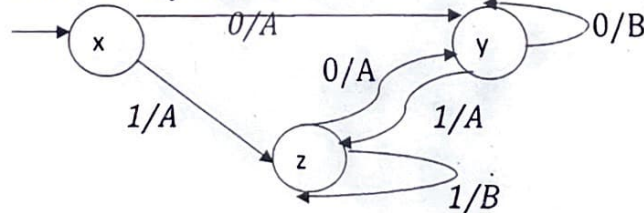
Design a Finite automata (FA) which can check that the decimal of given binary string is divisible by 4 and also write a regular expression for the language $L = \{0^n 1^m \mid (n+m \text{ is even})\}$. [5] CO1 BTL-3

Q.No. 2

Explain pumping lemma for regular expression and Construct DFA for regular expression $(0 + 1)^*(110 + 01)$. [5] CO2 BTL-2,3

Q.No. 3

Consider following mealy machine, construct a Moore machine equivalent to this mealy machine. [5] CO3 BTL-3



Q.No. 4

What is chomsky's classification for the grammar? Design a Context Free Grammar (CFG) for the language $L = \{0^i 1^j 0^k \mid j > i + k\}$. [5] CO2 BTL-2,3

Q.No. 5

Explain Arden's theorem and find a regular expression (RE) corresponding to the following FA using Arden's theorem. [5] CO2 BTL-4

