

Department of Computer Science & Engineering

Class Test: 3

Sub: Theory of Computation (CSU 502)

Time: 1 hour

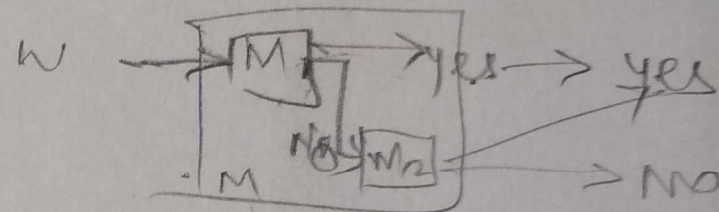
Class: Fifth Semester

Marks: 25

Q1.) Find whether the following instance of PCP is decidable

9M

	List A	List B
i	wi	xi
1	100	1
2	1	00
3	0	100

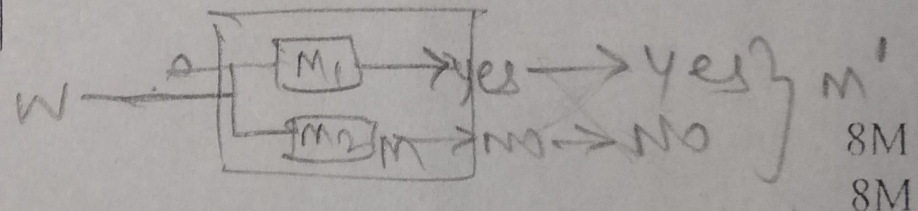


Solve any two from following

Q2) The complement of recursive language is recursive.

Q3) The union of recursive language is recursive.

Q3) Convert the following Turing machine into Universal turing machine for string 1011. turing machine defined



$M = (\{q_1, q_2, q_3, q_4\} \{0, 1\} \{0, 1, B\}, q_1, \delta, \{q_4\})$

Delta is defined as

$\delta(q_1, 0) = (q_3, 1, L)$

$\delta(q_1, 1) = (q_4, 0, R)$

$\delta(q_2, 0) = (q_2, 0, L)$

$\delta(q_2, 1) = (q_3, 1, L)$

$\delta(q_3, 0) = (q_3, B, L)$

$\delta(q_3, 1) = (q_3, 1, R)$

$\delta(q_3, B) = (q_3, B, R)$

8M