



Course: Theory of Automata
 Program: BS (Computer Science)
 Duration: ~20 Minutes
 Paper Date: 6-12-2023
 Section: SE
 Exam: Quiz 4-5

Course Code: CS-3002
 Semester: Fall 2023
 Total Marks: 10
 Weight: 10
 Page(s): 1
 Roll No. 211-5349

Ali Raza

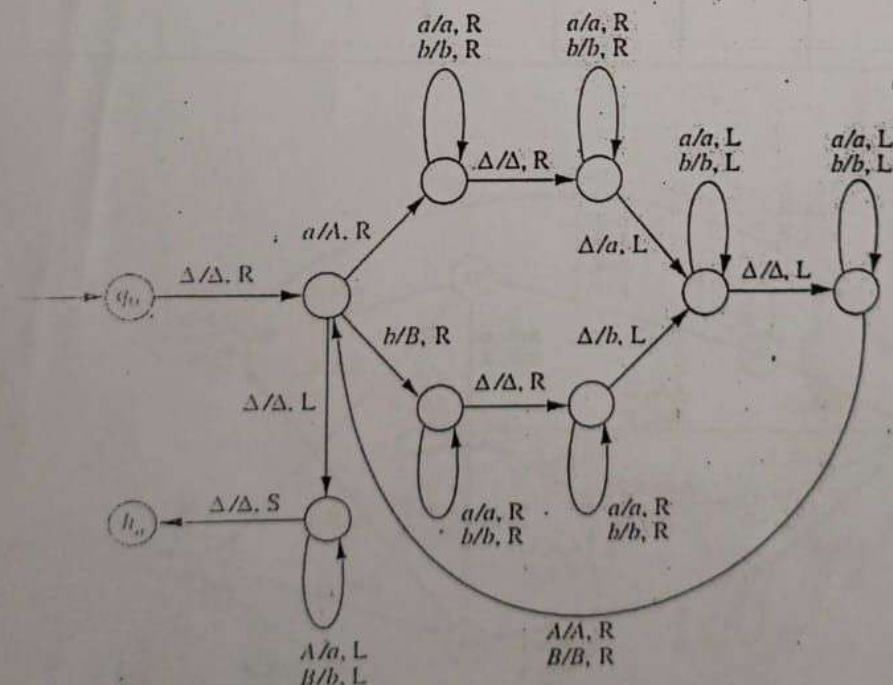
What will be the output of the given input on following Single Tape Turing Machine and what functionality is performed over it also mention the pointer position when string in Input is processed?

Input:

Δ	a	b	b	a	a	b	b	b	Δ
----------	---	---	---	---	---	---	---	---	----------

Output:

Δ	a	b	b	a	a	b	b	b	Δ	a	b	b	a	a	b	b	b
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This machine is copying the string in the tape

School of Computing

after the Δ sign. It makes a's and b's, A's and B's respectively and then again makes them small after copying string after Δ .

National University of Computer and Emerging Sciences, Lahore Campus



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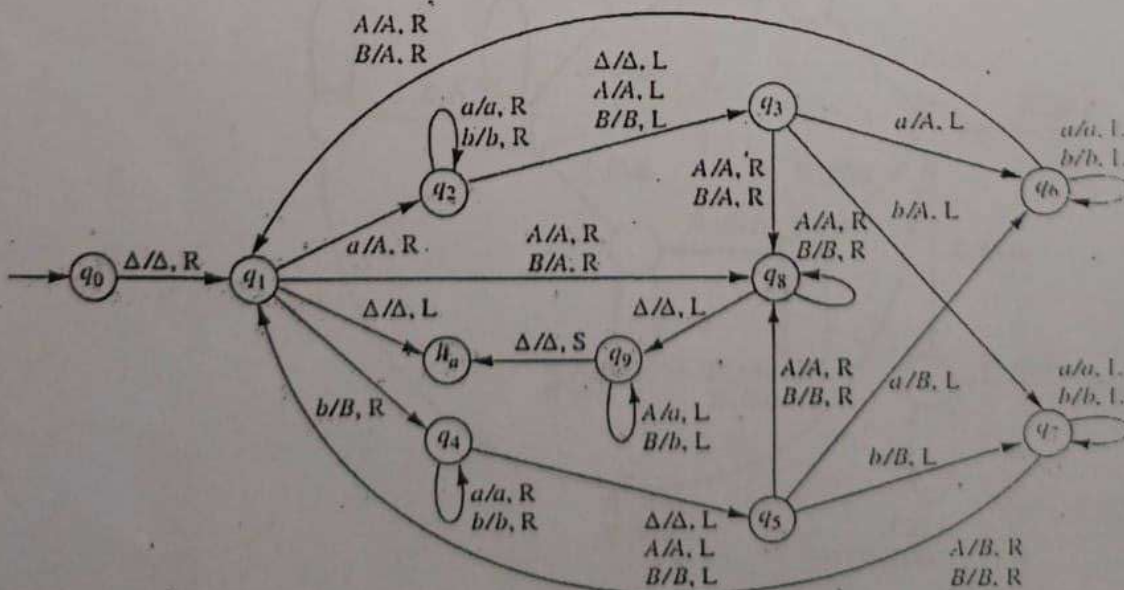
Q1: What will be the output of the given input on following Single Tape Turing Machine and what functionality is performed over it also mention the pointer position when string in Input is processed.

Input:

Δ	a	b	b	a	a	b	b	b	Δ
----------	---	---	---	---	---	---	---	---	----------

Output:

Δ	b	b	b	a	a	b	b	a	Δ
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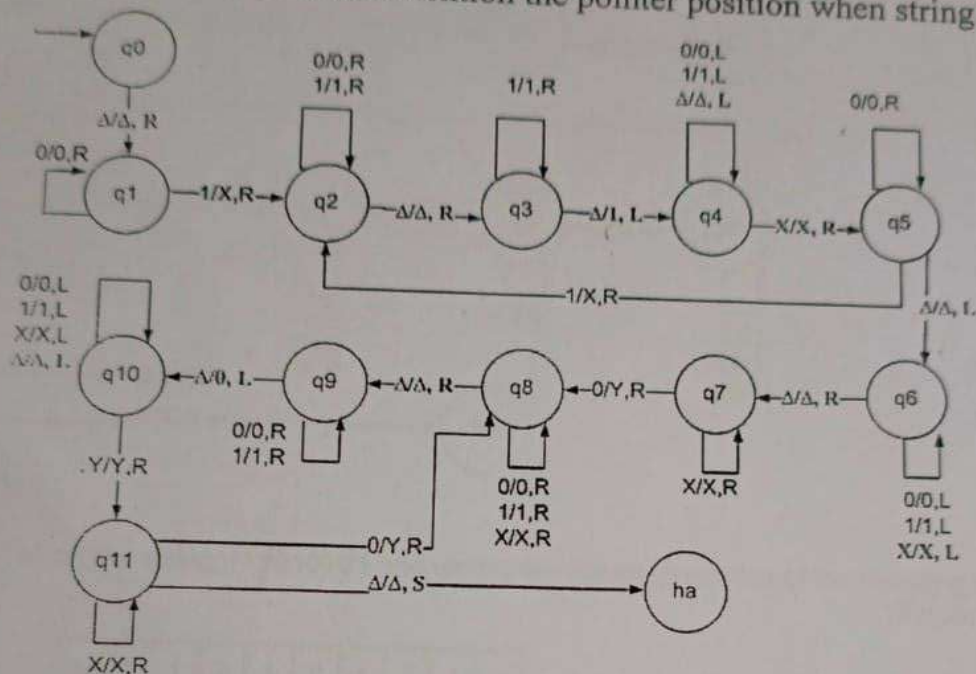
Program: BS (Computer Science)
Duration: ~20 Minutes

Paper Date: 5-E
Section: 5-E
Exam: Quiz 4-5

Course Code: CS-3002
Semester: Fall 2023
Total Marks: 10
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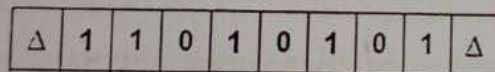
Page(s): 1
Roll No. 211-5234

Q1: What will be the output of the given input on following Single Tape Turing Machine and what functionality is performed over it also mention the pointer position when string in Input is processed?

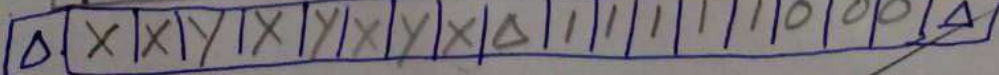
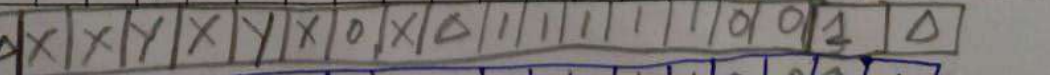
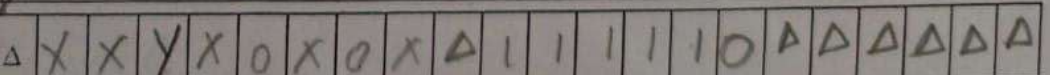
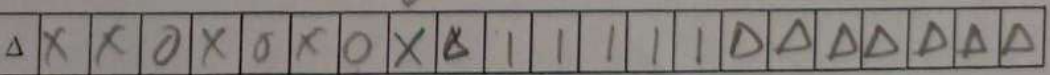
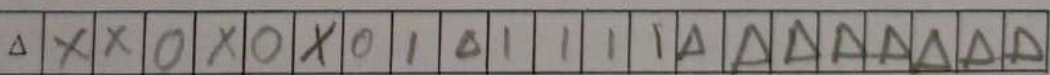
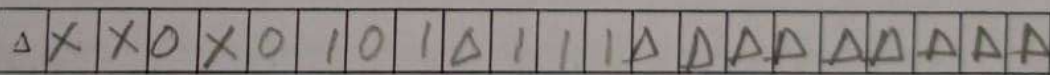
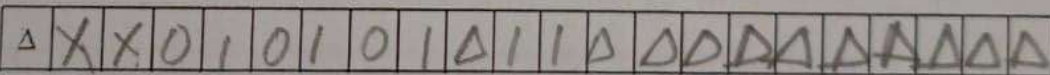
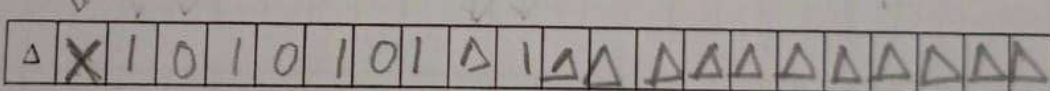


You have to run the TM on the string 111010101 and determine the configuration of the resulting tape? (Show working) (12 points)

Tape you are given:



Tapes for rough work:



Resulting Tape