KATIONAL

National University of Computer and Emerging Sciences, Lahore Campus

Course Name:

Theory of Automata

BS (CS)

OFE

Student: Name**:**

Degree Program:

Exam Duration:

Paper Date:

Section**:**

Exam Type:

60 Minutes 18-Oct-**2021** ALL

Midterm-1

Roll No..

Course Code:

Semester**:**

Total Marks:

Weight

Page(s):

Instruction/Notes: Answer in the space provided, showing all the working.

Question 1:(10 point)

ROUGH SHEETS ARE **NOT** ALLOWED.

Section:

In case of confusion or ambiguity make a reasonable assumption.

Good luck!

Solution

CS-**3005**

Fall 2021

40

17.5

4

Following are some of the examples of valid and invalid numerals in Python. Based on these examples, create

regular expression for valid numerals

Valid +69

-258

588

Invalid

+85.768 -679.23 873.030 +.23

-.758

8.

+1897.

-5456.

RE1 without .

RE1 with

Final
RE

(+/-/λ)(0-9) (0-9)*

(+/-/^)(0-9)*

(•) (0-9) (0-9)*

RES /
RE2

I is symbol for or

punion

+ {

(0-

1),+,

School of Computer Science

Roll Number:

Question 3 (15+5 points):

a. Design a deterministic finite automate of following language:

$$\Sigma = \{0,1\}$$

$$L = \{w|w \text{ ends with } 00 \text{ or } 11\}$$

Note: other than initial and final state(s) you can at max use 2 more states.

180

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1

I have marked it from 10

Note that following solution

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1

2

School of Computer **Science**

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I have only

Given

3/10

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bil Nur.

Question 2

Number:_

Section:

Question 2 (10 points): Convert following Finite Automate to Deterministic Finite Automata

I

*

Transition Table

b

a

1,3,4 2.

2 3 $

341 2

311391

4/4

2.

Transition Table

b

a

223 كر

>> * {1} {{1,3,

4} *{1,3,4}|

{1,3,4} {2} {2}

{3} {6} {3}

{123, 4} {2}

}}

of #PFA

{1} is mitial ty pinal state

¥1,343

17

is

is also

a

final state

Test {2},

{3},

are

ron

Final