Theory of Automata

Assignment # 01 million with 10 2 stur noving with 10 pramutations

* 128 pg rule i

feeling 231 as xyz

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30 is 231 by wing nite 2 (yex)

ors well as 321 by rule 2 (zyx)

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QI:-

If x is in eventuing then iso is xx in Eventuing as well No smings allowed other than those defined in Rule 2. Rule 1:-Rule 2: Rule 3:

for By using Rule 2 at definition we have it distinct to

Rule 1:- a and b are in oddstring
Rule 2:- 41 Rule 2: If x is in odel string then so is xxx in oddstring as well Rule 3: No string other than these defined in Rule 2.

c, Rule 1: aa, aab and baa are in AA.

Rule 2: If x is in AA then iso is sib and bx are also in AA Rule 3: No strings other than those defined in Rule 2.

close carbon in warried hart next restor grider our is dust

Rule 1: a, b are in NOTAA.
Rule 2: If x is in NOTAA then iso is xb and bx in NOTAA as well.

Rule 3: No istrings other than those defined in Rule 2

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The second

By the given rule 2 of the definition of b distinct

123 by rule 1

=> so is 231 by using rule 2 (yzx)
=> cus well as 321 by rule 2 (zyx)

taking 231 as xyz

by using rule 2 and 321

By using Rule 2 of definition we have & distinct permutations. (2x4)

=> 1234 by Rule 1 ai or north prins John rid x 7 + 12 dus

=> 4321 by using Rule 2 estively at matte prints of the about

=> 2341 by using Rule 2 = yzwx

c. Rule I: aa, aat and has are in 14. Rule 1: 1,2,6 is in fautorial !!

Rule 2: n feutorial i e n! = n: (n-1)! are also in foutorial

Rule 3: No string other than that defined in Rule 32.

h, By given foutorial definition we make parts of 3!, 5!

=> By using Rule 2 of remsive definition both 3! and 5! are possible.

=> However (3-4)! is invalid and generates (-1)! which is not possible.

E what making

Question Number 2:-

- 1) (a+b)* aa (a+b)*
- to such that aparties wit is . 2) (b+ab)* (x+aa) (b+ab)* (x+aa) (b+ba)*
- (x+ ((1-q)(0-q))*)(1+3+5+7+9)
- 4) = ? Proper details not provided.
- 5) (a+b) aa (a+b) aber (a+b) + (a+b) abaa (a+b) + (a+b)* aba (a+b)* aa (a+b)* will will be
- (0+1)* (x + 00 + 11 + 10)
- i thin pains epine with the I 7) (0+10)* 15 0 (x+1) on an ound contains and by-
- 8) a*(b(bb)*aa*)(x+b(bb)*)on.
- 4) (aa + bb + (ab + ba) (aa + bb) (ab + ba)) * b (act + bb + (ab + ba)(act + bb)* (ab + ba))*
- (ab +ba) (aa + bb) + (aa +bb) * (ab +ba)

Question Number 3:

- 1) All the strings that have 101.
- 2) All strings should nave 1,0 and 1.
 3) All the strings having 0's which are not more than

Custain Abunda 3

"(deb) AN "(deb) T

- 4) Ill the strings have even number of length.
- 5) All the strings have consentive even number of a's
- 6) Ill the shings must have even 3 or more number
- All the strings eneling with 010.
- 8) All the strings have no more than 3 a's.
- All the strings should have a and b. 91

d'action "ladton (pattau) tall ton) (as the translage too) (upthar)"

(a) + id) * (c) + a) + *(dd + a) (pd+ da)