S = {a,b}

L = {a ab abb abbb abbbb ... }

write the R.E. of this language

L= ab*

S={b}

S*={ aA, ab, abb, abbb, abbbb, ……}

$$S = \{ab\}$$

$$S^* = (ab)^* = \{ A, ab, abab, ababab, abababab, \ldots\}$$

$$(ab)^* \qquad ab^*$$

EXAMPLE The language defined by the expression ab*a

L1= ab*a

b*={A, b, bb, bbb, bbbb, ……}

L1={ aAa, aba, abba, abbb a, abbbb a, abbbbb a, a a, a a, a a

L2=aab*

L2={ aaA, aab, aabb, aabbb, aa, aa, aa, aa, aa,

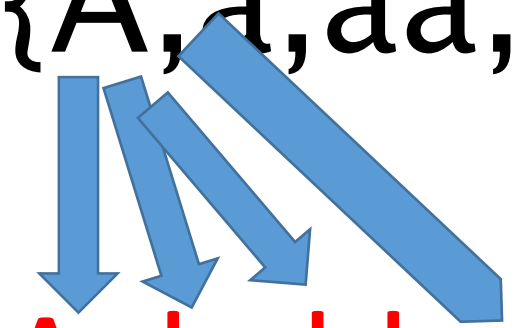
L3=b*aa

L3={ Aaa, baa, bbaa, bbbaa, aa, aa, aa, aa

L=a*b*

a*={A,a,aa,aaa, aaaa, aaaaa,

… }



b*={A, b, bb, bbb, bbbb, ……}

L={AA, Ab, Abb, Abbb, aA ,

ab, abb, ……}

L= a*b*a*

a*={A,a,aa,aaa, aaaa, aaaaa, … }

b*={A, b, bb, bbb, bbbb, ……}

a*={A,a,aa,aaa, aaaa, aaaaa, … }

L= {AAA, AAa, AAaa,AbA,,

b

E={x}

L = {$\boldsymbol{xOdd}$}

L1= x*={A, x, xx, xxx, xxxx, ……..}

L2= (xx)* ={A, xx, xxxx, xxxxxx, ……..}

L3=(xxx)*={A, xxx, xxxxxx, ……..}

L4= x(xx)*= {x,xxx, xxxxx,……..}

Question:- Which one represent L = $\{\boldsymbol{xEven}\}$

1-$\boldsymbol{x}* \ \boldsymbol{xx}*$

2-$\boldsymbol{x}*(\boldsymbol{xx})*$

3-$\boldsymbol{xx}*$

4-$(\boldsymbol{xx})*$

5-None

6-All of above

R.E.

L1 = (x+y) = {x, y}

L2= (a +b)= {a, b}

L3 = (12 + 17) = { 12, 17}

L4= (ab + bb) = {ab, bb}

L5= (cd+ ef +bb)= { cd, ef, bb}

R.E.

L1 = (x* + y) = {A, x, xx, xxx, xxxx, ...,y }

x*= { A, x, xx, xxx, xxxx, ... }

R.E.

L1 = (ab* + b*) = {aA, ab, abb, abbb, abbbb, abbbbb, abbbbbb,…. , A,b,bb,bbb,bbbb, …….}

ab*= {aA, ab, abb, abbb, abbbb, abbbbb,….

R.E.

a

(a* + b)*=

a*= {A,a,aa,aaa, aaaa, aaaaa, … }

(a**)= a* = a***

(ab* + (ba)*)*=

R.E.

a***=a*

(ab* + (ba)*)*=

(ab*) *= {

ab*= { a, ab, abb, abbb, abbbb, abbbbb, ... }*

= { a*, (ab)*, (abb)*, ...}

= { A, a, aa, aaa, ab, abab, ababab, abb, abbabb, abbabbabb,.....}

(ba)** = (ba)*= { A, ba, baba, bababa, ...}

(ab* + (ba)*)*= {A, a, aa, aaa, ab, abab, ababab, abb, abbabb, abbabbabb,....., ba, baba, bababa}

(12 + 21*)*=
(12)*= { A, 12, 1212, 121212,……}

(21*)* = {2, 21 , 211 , 2111 , 21111 , 211111,… } *
21* = { 2, 21 , 211 , 2111 , 21111 , 211111,……
(21*)* = {2*, (21)* , (211)* , (2111)* , (21111)* ,
211111,… }

L = {aaa aab aba abb baa bab bba bbb}

L= (a + b)(a + b) (a + b) =(a+b)3

q1/ L1= (a + b)(a + b)

= (aa + ab +ba +bb)

q2/ L2= (a + b)*(a + b)

L2= (a* + b*) (a + b) = (a*a + a*b+ b*a+ b*b)

{ }

L= (a + b)(a + b) (a + b)

L = (aa + ab+ ba + bb) (a+b)

L= (aaa + aab + aba+ abb + baa+ bab + bba + bbb)

L= { aaa aab aba abb baa bab bba bbb}

$$L = (a + b)\ 5$$
$$L = (a + b)\ (a + b)\ (a + b)\ (a + b)\ (a + b)$$
$$= (aa + ab + ba + bb)\ (aa + ab + ba + bb)\ (a + b)$$

$a(a + b)^*b = a(a^* + b^*)b = \cancel{ab(a^*+b^*)}$

$= (aa^*+ ab^*)b = (aa^*b + ab^*b)$

{ }

(a + b)* a (a + b)*

= (A, a, aa,aaa, aaaa, ……., b, bb, bbb,bbbb,)a

aaaaa

1- aaaaa True

2- aaaaa True

3- aaaaa True

all possible solutions

~~Unique~~ or not unique