

"FINAL TEAM"

NAME:-

HAMMAD PER

ID:-

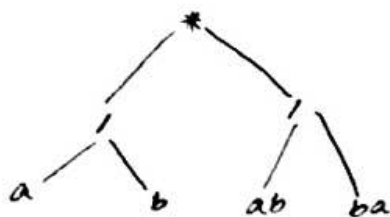
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Question 1 ::

$$(a/b)^*(ab/ba)$$

Solution ::

• Parse Tree



→ NFA



Question 2 ::

Regular Expressions.

- i) $(a+b)^*$
- ii) $(aa+b)^*$
- iii) $(aaa+b)^*$
- iv) $(a+b)^*b$
- v) $b(a+b)^*$

Question 3 ::

(a) Prove that $(a/b)^* \neq a^*b^*$

Solution ::

a/b means a or b
 $(a/b)^*$ → strings of a 's or b 's
 a^* means strings of a 's
 b^* means strings of b 's

(a) $a^* b^*$ means strings of a's followed by string of b's

Now

$(a/b)^*$ means no sure sequence it can be aa, ab, ba, bb whereas $a^* b^*$ means ab, bb, aa, abb

Hence prove that $(a/b)^* \neq a^* b^*$

(b) Derive language description for the following RE

(i) $(a/b)(a/b)b(a/b)^*$

Language for words over $\{a, b\}$ which starts with "a, a" or "ab" or "bb" followed by "b" & ends with any letter.

(ii) $(a/b)^* b(a/b)(a/b)$

$L = \{a, b\}$ where strings starts with any letter followed by "b" & ends with "aa" or "ab" or "ba" or "bb"

(iii) $(a/b)^* (aa/bb)$

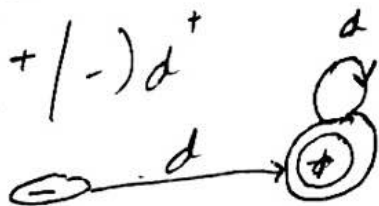
$L = \{a, b\}$ where last symbol must be two a's or b's string must end with "aa" or "b, b"

(iv) $(aa/bb)(a/b)^*$

$L = \{a, b\}$ where first symbol must be aa, bb string must start with "aa" or "bb"

Question 4: NFA

(i) $(+|-)d^+$



(ii) $(a/b)^* (aaa/bbb) (a/b)^*$

