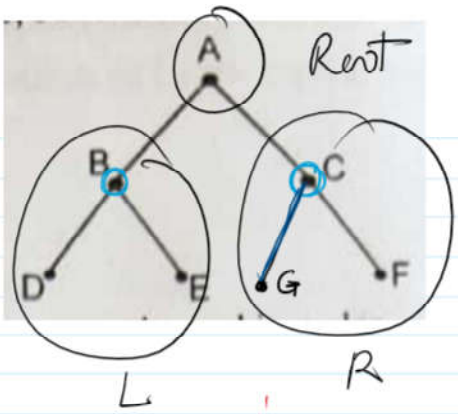
L-34 Traversing

Tuesday, April 26, 2022 10:00 AM

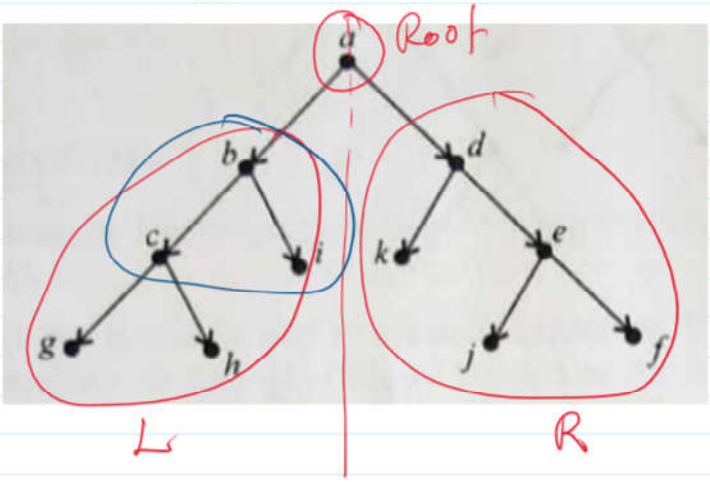
Traverse



① Preorder A B D E C G F

② Postorder :→ D E B G F C A

③ Inorder :- D B E A G C F



① Inorder

g, c, h, b, i, a, k, d, j, e, f

② Pre-order

a, b, c, g, h, i, d, k, e, j, f

③ Post order

g, h, c, i, b, k, j, f, e, d, a

An Expression Tree Also have three forms.

1. Prefix Form : When a pre-order traversal is performed on an expression tr... then result obtained is called pre-fix form or Polish form of the given algebra... expression.

2. Post Fix Form : When a post-order traversal is performed on an expression tr... then result obtained is called post-fix form or reverse polish form of the given algebra... expression.

3. Infix Form : Infix form results from the in-order traversal of expression tree.

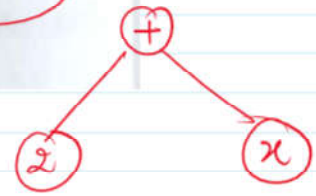
Consider the expression $a + b$. In this expression a, b are operands and '+' is ... operator. The sequence of operators and operands in three form is as given below :

Pre-fix form : operator, operand, operand

Post-fix form : operand, operand, operator

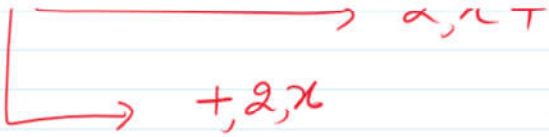
In-fix form : operand, operator, operand.

2 + x



2, x +

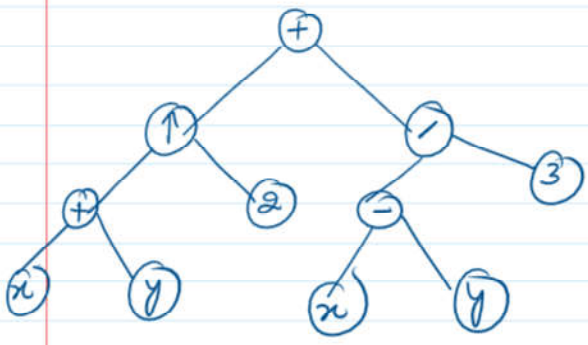
+ 2 x



(2) (x)

Find pre-fix and post-fix expression for $((x + y) \uparrow 2) + ((x - y)/3)$

$[(x+y)\uparrow 2] + [(x-y)/3]$ $\qquad$ $(x+y)^2 + \frac{(x-y)}{3}$



Expression Tree for the given Alg. Exp.

① Pre-fix form

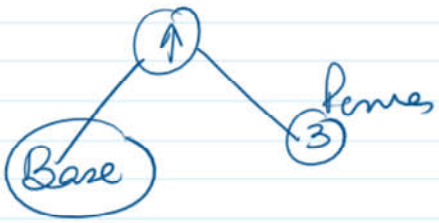
+, ↑, +, x, y, 2, /, −, x, y, 3

② Post fix form :-

x, y, +, 2, ↑, x, y, −, 3, /, +

Q3. Evaluate the pre-fix expression

+ − * 2 3 5 / ↑ 2 3 4.



+, −, X, 2, 3, 5, /, ↑, 2, 3, 4 $\quad (\uparrow 2^3)$

⇒ +, −, (2×3), 5, /, ↑, 2, 3, 4 $\quad (2^3 = 8)$

⇒ +, −, 6, 5, / ↑ 2 3 4

⇒ +, (6−5), /, ↑, 2, 3, 4

⇒ +, 1, /, ↑, 2, 3, 4

⇒ +, 1, /, 2^3, 4

⇒ +, 1, /, 8, 4

⇒ +, 1, $\frac{8}{4}$

⇒ +, 1, 2 ⇒ 1+2 = 3

Q4. What is the value of post-fix expression

7 2 3 * − 4 ↑ 9 3 / +

2×3 $\qquad$ 9/3

7, 6, − $\qquad$ 4 ↑ 3 $\qquad$ +

Ope, Op. Operators

L R

4 ↑ 9 $\qquad$ 4^9

2x3 13

7,6 — 4↑3 +

7-6 14↑

1↑4 3+ 13+ 1+3=4