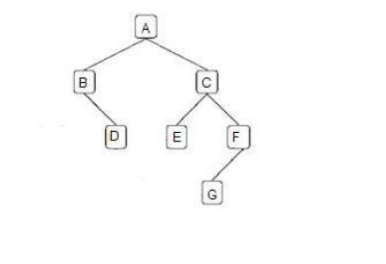
null null

Null Null null null

In Order Traversal - Left Root Right (for each node recursively) - 4, 2, 5, 1, 3

Pre Order Traversal - Root Left Right (For each node recursively) - 1, 2, 4, 5, 3

Post Order Traversal - Left Right Root (For Each Node Recursively) - 4, 5, 2, 3, 1



Inorder – left root right B, D, A, E, C, G, F

Preorder – root left right

Postorder – left right root

INFIX TO POSTFIX

( A \* (B + C / D ) – E / F)

|  |  |  |
| --- | --- | --- |
| CHARACTER | STACK | POSTFIX EXPRESSION |
| ( | ( |  |
| A | ( | A |
| \* | (\* | A |
| ( | (\*( | A |
| B | (\*( | AB |
| + | (\*(+ | AB |
| C | (\*(+ | ABC |
| / | (\*(+/ | ABC |
| D | (\*(+/ | ABCD |
| ) | (\* | ABCD/+ |
| - | (- | ABCD/+\* |
| E | (- | ABCD/+\*E |
| / | (-/ | ABCD/+\*E |
| F | (-/ | ABCD/+\*EF |
| ) | empty | ABCD/+\*EF/- |

(P \* Q / R + ( S + T))

|  |  |  |
| --- | --- | --- |
| CHARACTER | STACK | POSTFIX |
| ( | ( |  |
| P | ( | P |
| \* | (\* | P |
| Q | (\* | PQ |
| / | (/ | PQ\* |
| R | (/ | PQ\*R |
| + | (+ | PQ\*R/ |
| ( | (+( | PQ\*R/ |
| S | (+( | PQ\*R/S |
| + | (+(+ | PQ\*R/S |
| T | (+(+ | PQ\*R/ST |
| ) | (+ | PQ\*R/ST+ |
| ) | EMPTY | PQ\*R/ST++ |
|  |  |  |

(A+(B-C\*(D/E)\*F)) A(B((C(DE/)\*)F\*)-)+

|  |  |  |
| --- | --- | --- |
| CHARACTER | STACK | POSTFIX |
| ( | ( |  |
| A | ( | A |
| + | (+ | A |
| ( | (+( | A |
| B | (+( | AB |
| - | (+(- | AB |
| C | (+(- | ABC |
| \* | (+(-\* | ABC |
| ( | (+(-\*( | ABC |
| D | (+(-\*( | ABCD |
| / | (+(-\*(/ | ABCD |
| E | (+(-\*(/ | ABCDE |
| ) | (+(-\* | ABCDE/ |
| \* | (+(-\* | ABCDE/\* |
| F | (+(-\* | ABCDE/\*F |
| ) | (+ | ABCDE/\*F\*- |
| ) | EMPTY | ABCDE/\*F\*-+ |

((A+B\*C) – (E\*F/H) + J) ABC\*+EF\*H/-J+

|  |  |  |
| --- | --- | --- |
| CHARACTER | STACK | POSTFIX |
| ( | ( |  |
| ( | (( |  |
| A | (( | A |
| + | ((+ | A |
| B | ((+ | AB |
| \* | ((+\* | AB |
| C | ((+\* | ABC |
| ) | ( | ABC\*+ |
| - | (- | ABC\*+ |
| ( | (-( | ABC\*+ |
| E | (-( | ABC\*+E |
| \* | (-(\* | ABC\*+E |
| F | (-(\* | ABC\*+EF |
| / | (-(/ | ABC\*+EF\* |
| H | (-(/ | ABC\*+EF\*H |
| ) | (- | ABC\*+EF\*H/ |
| + | (+ | ABC\*+EF\*H/- |
| J | (+ | ABC\*+EF\*H/-J |
| ) | EMPTY | ABC\*+EF\*H/-J+ |
|  |  |  |
|  |  |  |
|  |  |  |

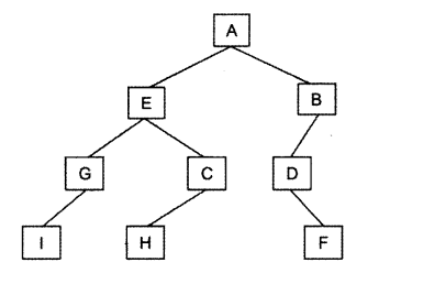
INFIX - (A+B/C \* (D/E\*F)) POSTFIX - ABC/DE/F\*\*+ PREFIX - +A\*/BC\*/DEF

|  |  |  |
| --- | --- | --- |
| CHARACTER | STACK | POSTFIX |
| ( | ( |  |
| A | ( | A |
| + | (+ | A |
| B | (+ | AB |
| / | (+/ | AB |
| C | (+/ | ABC |
| \* | (+\* | ABC/ |
| ( | (+\*( | ABC/ |
| D | (+\*( | ABC/D |
| / | (+\*(/ | ABC/D |
| E | (+\*(/ | ABC/DE |
| \* | (+\*(\* | ABC/DE/ |
| F | (+\*(\* | ABC/DE/F |
| ) | (+\* | ABC/DE/F\* |
| ) | EMPTY | ABC/DE/F\*\*+ |

INFIX - (A+B/C \* (D/E\*F)) ((F\*E/D) \* C/B+A)

|  |  |  |
| --- | --- | --- |
| CHARACTER | STACK | POSTFIX |
| ( | ( |  |
| ( | (( |  |
| F | (( | F |
| \* | ((\* | F |
| E | ((\* | FE |
| / | ((\*/ | FE |
| D | ((\*/ | FED |
| ) | ( | FED/\* |
| \* | (\* | FED/\* |
| C | (\* | FED/\*C |
| / | (\*/ | FED/\*C |
| B | (\*/ | FED/\*CB |
| + | (+ | FED/\*CB/\* |
| A | (+ | FED/\*CB/\*A |
| ) | EMPTY | FED/\*CB/\*A+ |

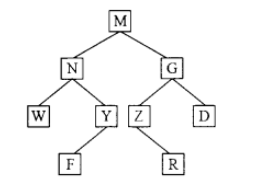
FED/\*CB/\*A+ -> +A\*/BC\*/DEF +A\*/BC\*/DEF



In order – left root right – I, G, E, H, C, A, D, F, B

Pre Order – Root left right – A, E, G, I, C, H, B, D, F

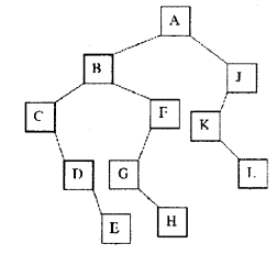
Post Order – Left Right Root – I, G, H, C, E, F, D, B, A



Post order - left right root – W, F, Y, N, R, Z,D,G,M

Pre order – root left right – M, N, W, Y, F, G, Z, R, D

In order – Left root right – W, N , F, Y, M, Z, R, G, D



Post order – Left right root – E,D,C,H,G, F, B, L, K, J, A

Pre Order – Root left right – A, B, C, D, E, F, G, H, J, K, L

In Order – C, D, E., B , G, H, F, A, K, L, J

23, 37, 11, 69, 42, 45, 30, 98, 91

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | 23 |  |  |  |  |  |  |  |  |
|  |  |  | 11 |  | 37 |  |  |  |  |  |  |  |
|  |  |  |  | 30 |  | 69 |  |  |  |  |  |  |
|  |  |  |  |  | 42 |  |  | 98 |  |  |  |  |
|  |  |  |  |  |  | 45 |  |  |  |  |  |  |
|  |  |  |  |  |  |  | 91 |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |