

NAME: ZAHOO R Khan

I. D : 13835

Subject: Data structure

Teacher: Sir, Aclil Khan

NAME: Zehoor Khan I.D = 13835

Q1) Sort the given list using Insertion
 → Sort

65, 70, 56, 51, 54, 66

$n = 6$

Steps = $n - 1 = 6 - 1 = 5$

Step 1: Element = 70

65, 70, 56, 51, 54, 66

Sorted

Step #2: Element = 56

65, 70, 56, 51, 54, 66

65, 56, 70, 51, 54, 66

56, 65, 70, 51, 54, 66

Step #3: Element = 51

56, 65, 70, 51, 54, 66

56, 65, 51, 70, 54, 66

56, 51, 65, 70, 54, 66

51, 56, 65, 70, 54, 66

Step #4: Element = 54

51, 56, 65, 70, 54, 66

51, 56, 65, 54, 70, 66

51, 56, 54, 65, 70, 66

51, 54, 56, 65, 70, 66

51, 54, 56, 65, 70, 66

STEP 5

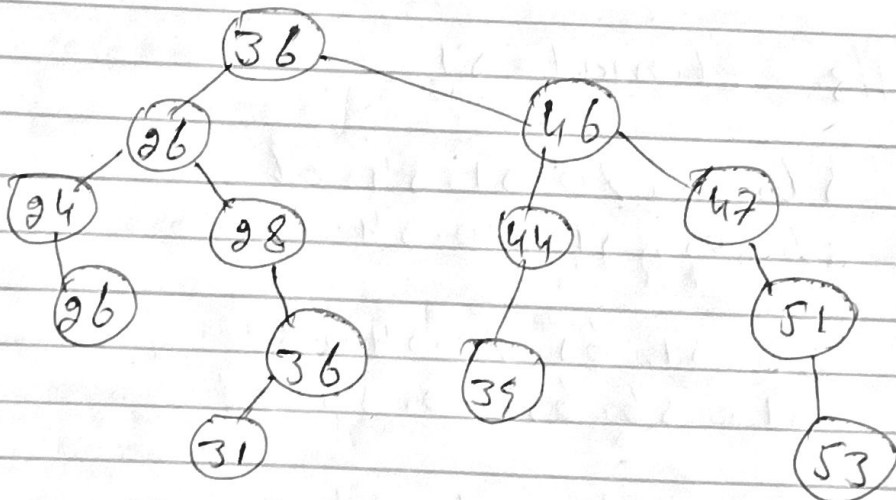
Element = 66

51, 54, 50, 65, 70, 66
51, 54, 56, 65, 66, 70

It is sorted (51, 54, 56, 65, 66, 70)

(Q) Construct Binary tree from given list of number and then verify?

36, 26, 46, 28, 44, 47, 36, 24, 26, 51, 39, 53, 31,



Verification:

24, 26, 26, 28, 31, 36, 36, 39, 44, 46, 47
51, 53.

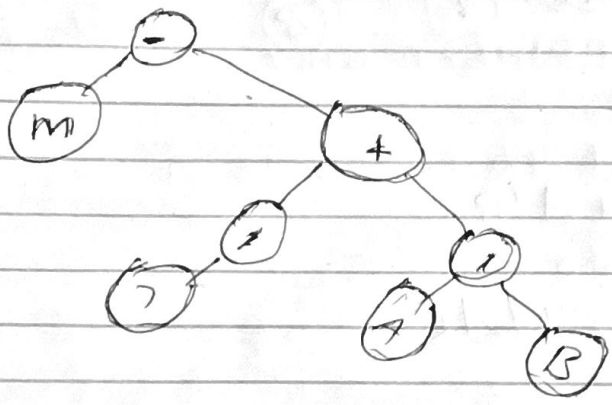


(D3) Construct Binary trees from given mathematical expression.

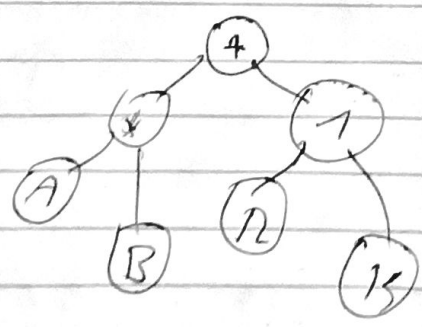
(i) $M - T / Y + (A / B)$

(ii) $A * B + R \wedge K$

(i) $M - T / Y + (A / B)$

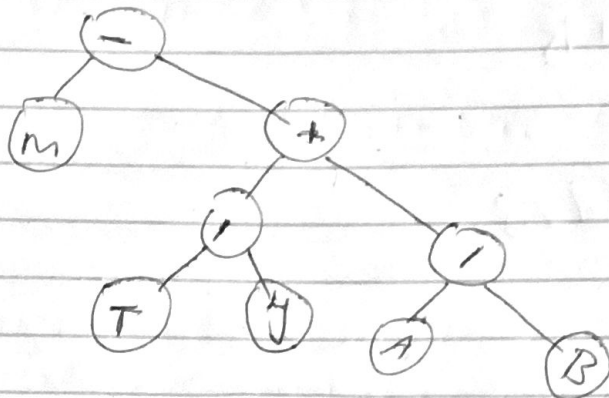


(ii) $A * B + R \wedge K$



Q4 Tree traversal techniques on Q3.

(i) $m - T/Y + (A/B)$



In order:-

$m - T/Y + A/B$

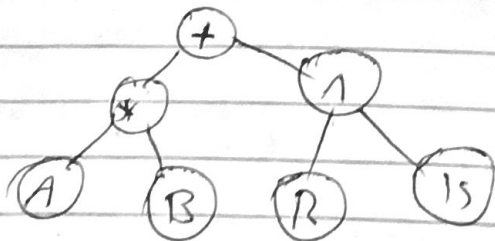
Pre-order:-

$- m + / T Y / A B$

Post order:-

$m T Y / A B / + -$

Q4 $A * B + R ^ 15$



In-order:-

$A * B + R ^ 15$

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Pre-order

=

*BARIS

Post-order-

=

AB*RK^+

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