Question :

Give the sequences of nodes examined when the methods in BST are used to compute each of the following quantities for the tree drawn at below.

a. floor("Q")

b. select(5)

c. ceiling("Q")

d. rank("J")

e. size("D", "T")

f. keys("D", "T")

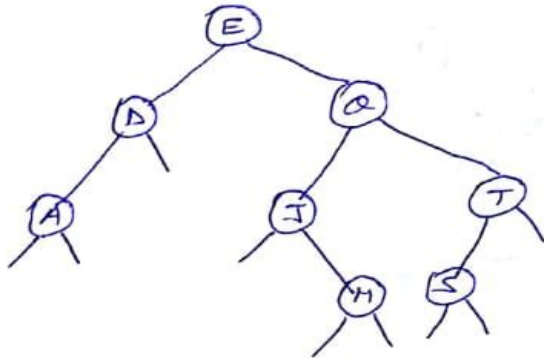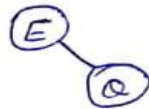**Solution:**

22)10)18

* <u>Ordered Operations on BST :-</u>

<u>H - 19 , A - 3</u>

a)

a) floor ("Q")

∵ key < x. key
returns x i.e Q

∴ <u>Q</u> will be returned.

b) select (5)

Apply inorder to the tree, then the array in

A	D	E	J	M	Q	S	T
0	1	2	3	4	5	6	7

So output in <u>Q</u>.

c) ceiling ("Q")
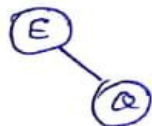
Ans : <u>Q</u>

d) rank ("J")
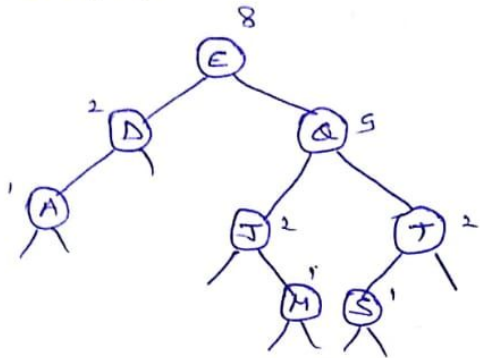
Rank of J is $\underline{\underline{2}}$

c) size ("D", "T")

Rank of D is 2

Rank of T is 2

∴ Ans :- rank(D) - rank(T) + 1

2 - 2 + 1 = $\underline{\underline{1}}$

b) keys ("D", "T")

D	E	J	M	Q	S	T