Question - 1

Fig: Tree of fibonacci (8).

Question -2

Given Array → [100, 90, 80, 70, 60, 50, 40, 30, 20, 10];

y Insertion Sort

steps

① Intitial Array: [100], 90, 80, 70, 60, 50, 40, 30, 20, 10.
No swaps needed as it's the first element.

ⓤ Array :- 100, [90], 80, 70, 60, 50, 40, 30, 20, 10
90 is smaller than 100, so it stays in place.

Array :-

90, 100, [80], 70, 60, 50, 40, 30, 20, 10
80, 90, 100, [70], 60, 50, 40, 30, 20, 10
70, 80, 90, 100, [60], 50, 40, 30, 20, 10

(similler steps for the Remainning
elements)

in step 10 :- ⓧ10, 20, 30, 40, 50, 60, 70, 80, 90, 100
Array is Sorted, Total swaps 27.

2/ Bubble Sort:-

Steps:

① [100], 90, 80, 70, 60, 50, 40, 30, 20, 10

② Swap 100 and 90.

(ii) 90, [100], 80, 70, 60, 50, 40, 30, 20, 10

Swap: 100 and 80.

(similar Steps for the Remaining elements)

(X) 90, 80, 70, 60, 50, 40, 30, 20, 10, 100

Pass ① Now it will Start the Pass (2 loop again, and will Sort the array in total 45 swaps.

3). Comparison :-

I) Insertion Sort Required 27 swaps
II) Bubble Sort Required 45 swaps

In this ARray, Insertion Sort Required fewer swaps compared to Bubble Sort making it more efficient for this particular array.