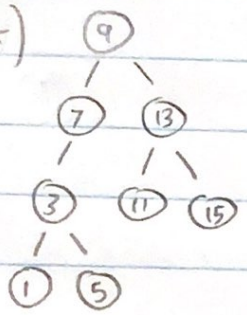
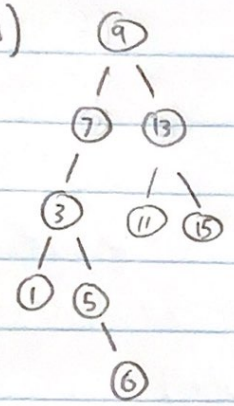
Q1:

Start)



1)



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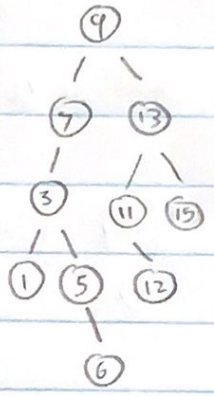
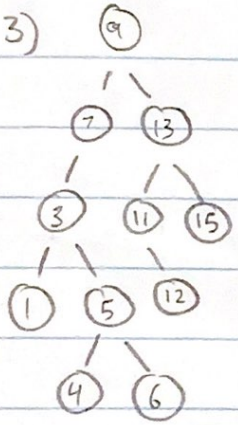


3)



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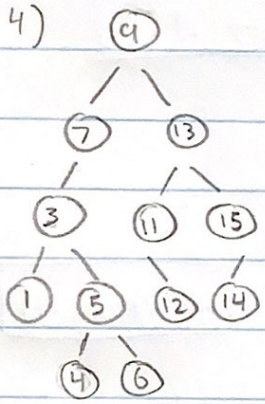

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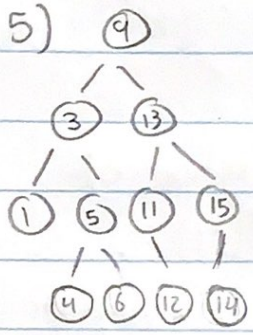

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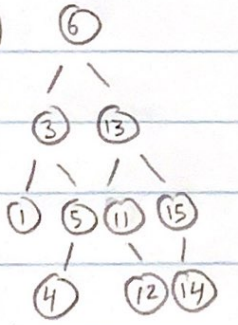
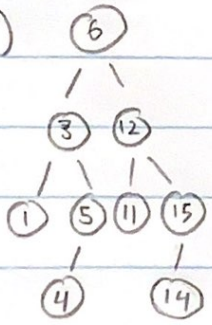


7)



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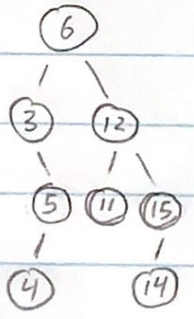

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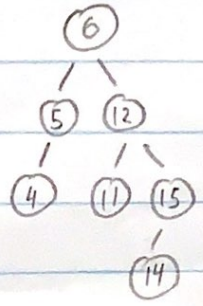

Q2:

Section a)

$$T(n) = 0 + \Theta(1) + 1 + \Theta(1) + \dots + (n-1)\Theta(1)$$
$$= 0 + 1 + \dots + (n-1) + n\Theta(1)$$
$$= \frac{(n-1)n}{2} + \Theta(n)$$
$$= \Theta(n^2) + \Theta(n) = \boxed{\Theta(n^2)}$$

Section b)

$$T(n) = 2^0 \cdot (0 + \Theta(1)) + 2^1 \cdot (1 + \Theta(1)) + \dots + \left(\frac{n+1}{2}\right) \cdot \left(\log\left(\frac{n+1}{2}\right) + \Theta(1)\right)$$
$$= \Theta(n \log n) + \Theta(n) = \boxed{\Theta(n \log n)}$$