26. IF ELSE STATEMENT

RULE: WHICH PART IS GREATER TAKEN TO BE CONSIDERATION FOR CALCULATION OF TIME COMPLEXITY.

$if(n = 0)\{ ----\rightarrow c_0$

$return\ false;$

}

$else \ ---------\rightarrow c_1$

{

$for(i = 0; i < n; i++)\{$

$if(arr[0] < arr[i])\{ --\rightarrow c_2$

{

$return\ arr[i];$

}

}

ANSWER

$Else\ and\ If\ are\ nested\ , Hence\ (c_1 + c_2)\ and\ for\ loop\ runs\ upto\ n\ , therefore: (c_1 + c_2) \times n. And\ the\ 1^{st}\ if\ runs\ c_0\ times\ hence\ c_0 + (c_1 + c_2) \times n$

$\Longrightarrow c_0 + c_1 + c_2 n = O(n), where\ c --\rightarrow constants.$

EXAMPLE 2

$$if(length = 0)\{ \longrightarrow c_0$$

$$print\ ("1");$$

$$\}$$

$$else \longrightarrow c_1$$

$$\{$$

$$print\ ("Hello");$$

$$\}$$

Answer

$$c_0 + c_1 = O(1)$$