## AssignMENT: - OL

An out Asymptotic Notation: - It is the mathematical notation used to describe the running-time of an Algorithm.

Different types of Mototlens one:-

- (ii) Engo Notation (D) -> It represents the lower bound of the algorithm.

  +(M) = D (glos) iff flo) > c(glos)
- (iii) Thato Notation (D) It represent upper and lesson bound of the algorithm.

  JUI : Olgan) iff. against special against

$$\frac{1}{2} = \frac{1}{2} + \frac{1$$

$$n = d(2)^{k-1}$$

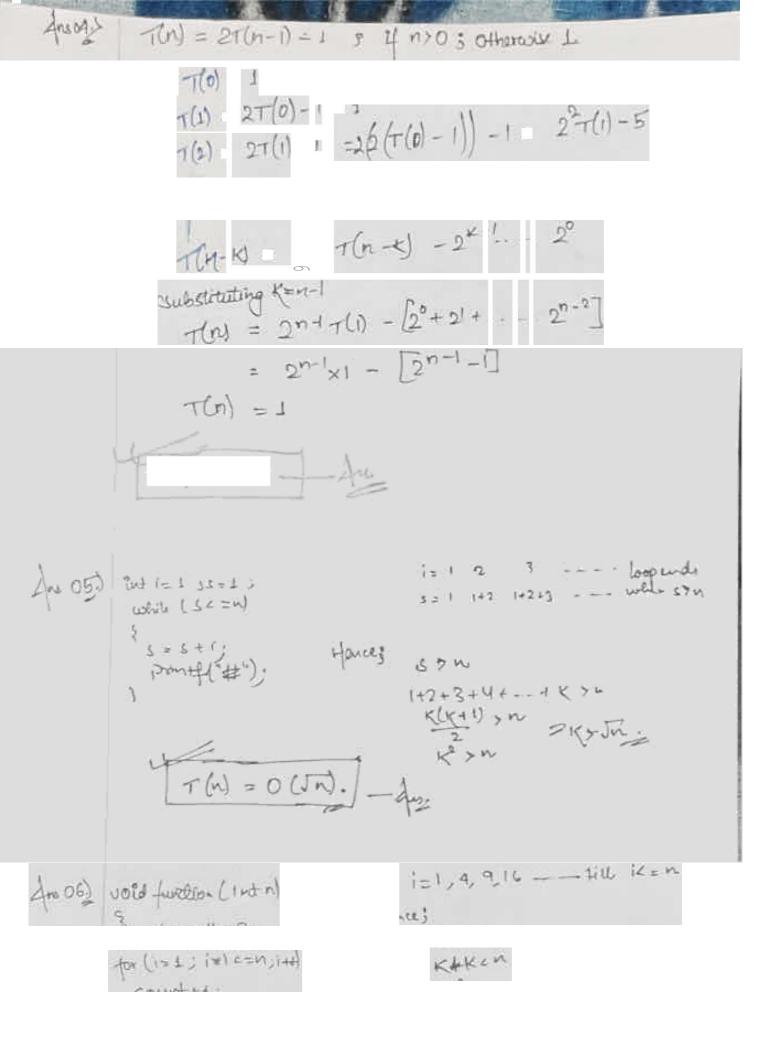
$$\log n = \log 2^{k-1}$$

$$\log n = k-1$$

$$k = \log n+1$$

$$\longrightarrow 1 \quad (n) \Rightarrow (\log n) \quad -4n$$

 $4^{-1}(x) = 3T(x) = 3$  7(x) = 3T(x) = 3 7(x) = 3T(x) = 3



T(n) = O(Vn) - Ans

Em 7 void function (int n) 15 100p:-1= 1/2 ton; 1++ int 1, count=0; for (int 1 92: 1412=n; 1+4) TU) - O(n) 2rd 600Pipr (j21; j4=n; jx2=j) j= 1+0n; j\*2  $T(j) = O(\log n)$ for (K=1; K+=n; K=K\*) count Hi 3rd loop: K=1 +0 m; K+2 T(x) = Olleger) Henry: T(n) = T(i) xT(j) xT(k) = O(n) x Ollegu) x Olleguy TENt= 0 (n/10g2n). - Am. Ane 8) function (int n) if (n = 1) return; T(1)for (j to n) -T(n2) { perint ("\*1); T (n-3) 3 function (4-3) Rei :- T(n) = T(n-3) + n2; T(1) = 1 Hones; T(4) = T(1) + (4) = 1 + 42 T(1) = T(4) + n2 = 12 + 42 + 72 T(n) = 1°+12+72+--- n2 (T(n)=0(n3).  $= n(n+1)(2n+1) = n^{\frac{3}{2}} - reacest$ 

Asymptotic rol<sup>n</sup> b/w fi & f2:
Big-0 -> f(m) = 0 (f(m)) = 0 (cn)

and nK & G\*\*cn [ G is some constant.).