

Assignment-1 → Time and space complexity analysis

(Q1) ~~Ans~~ → int c = 0;

```
for( int i=n; i>0; i=i-2){  
    c++;  
}
```

Time Complexity = ~~O(log n)~~ O(log n)

→ — — —

(Q2) ~~sol~~ →

```
int c = 0;  
for( int i=n; i>1; i=j-1){  
    c++;  
}
```

Time Complexity = O(log n)

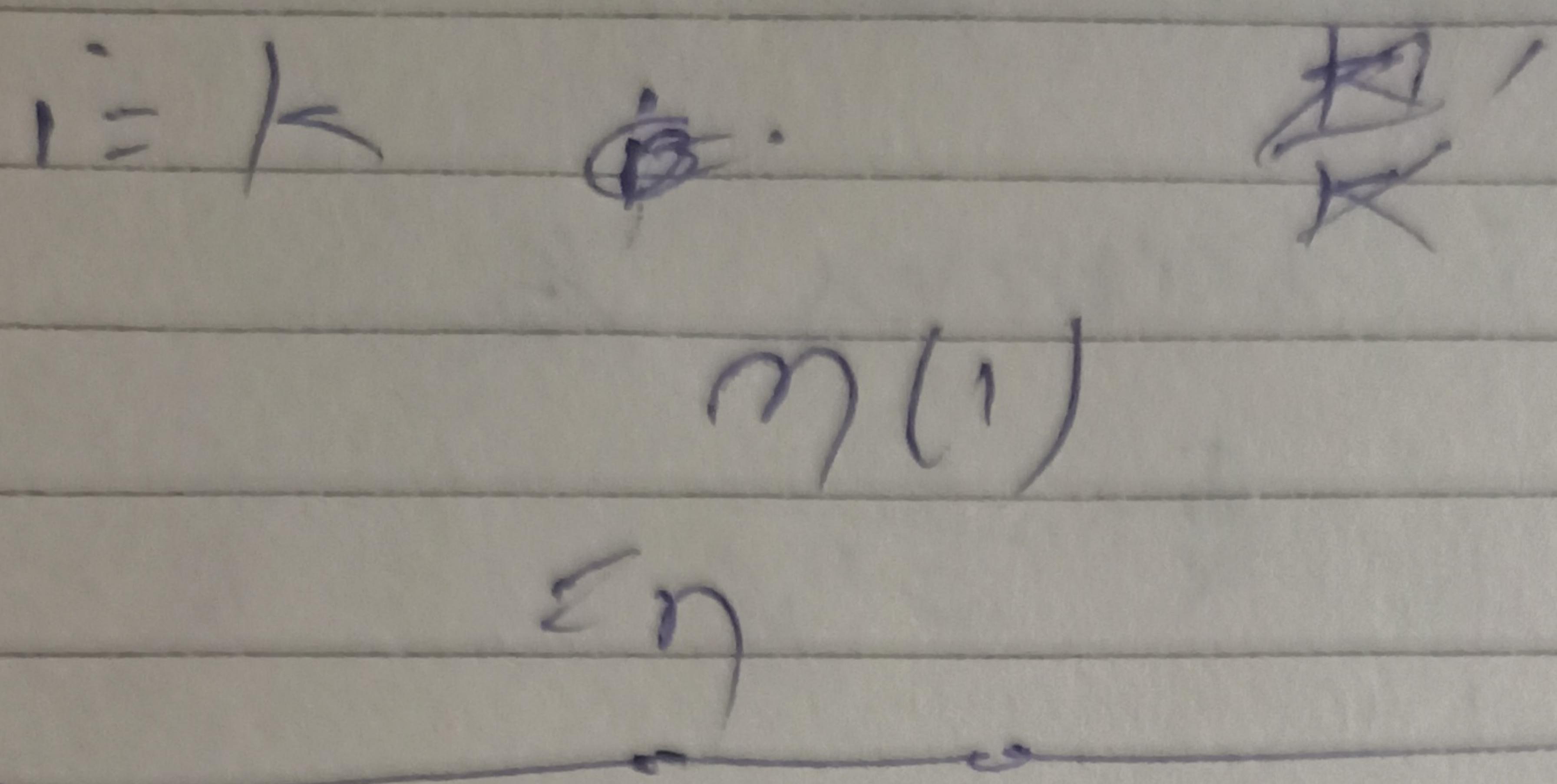
(Q3) ~~sol~~ →

```
int c = 0;  
for( int i=0; i<n; i+=k){  
    c++;  
}
```

Time Complexity = O(n)

$i = \frac{n}{2}$

Let K iterations



QWFT → $\int c = 0;$
for($\int i=1; i < n; i * 2 = 2$) {
 $c++;$
}

Time Complexity = $O(\log n)$

$O(5) \int c = 0;$
for ($\int i=0; i < n; i++$) {
 $c = i;$
}

Time Complexity = $O(n)$

~~$\frac{1}{2} = n$~~

$$i = 1, i \times 2 = 2$$

$$n = 10$$

$$i = 1 \times 2 \times 2^2 = 8$$

$$\text{for } k = 2k$$

$$\text{for } n = \log$$

for k iteration

$$i = 2k$$

 ~~$n=5$~~

$$i = 0 \times 2 \times 2 \times 2 = 8$$

$$2^k \geq n$$

$$k = \log_2 n$$

Thus $T.C. = O(\log n)$

~~Q6) Sol~~ \rightarrow

int c = 0;

for (int i = 0; i < n; i++) {

 for (int j = 0; j < i; j++) {

 c++;

}

Time Complexity = $O(n^2)$