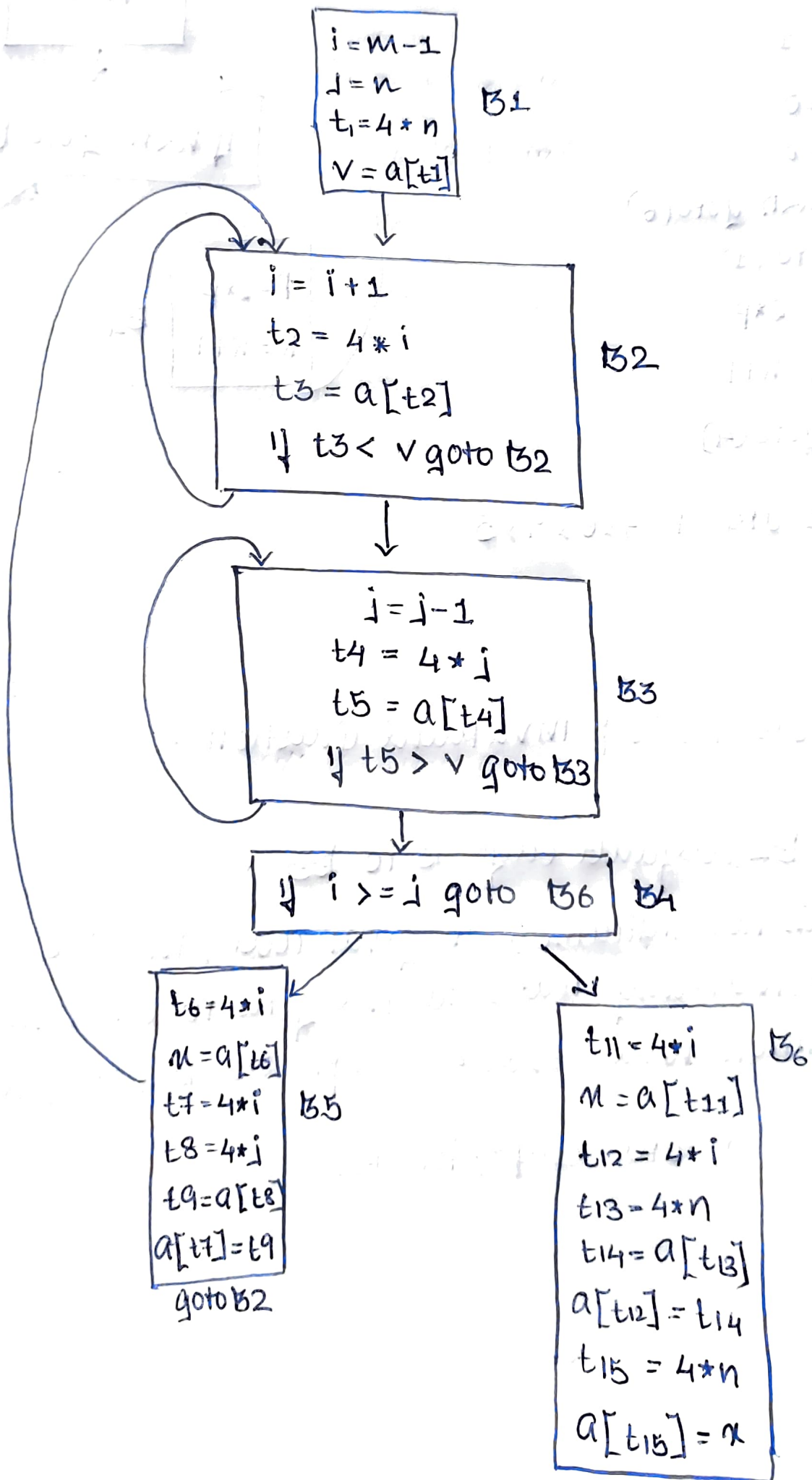


1.



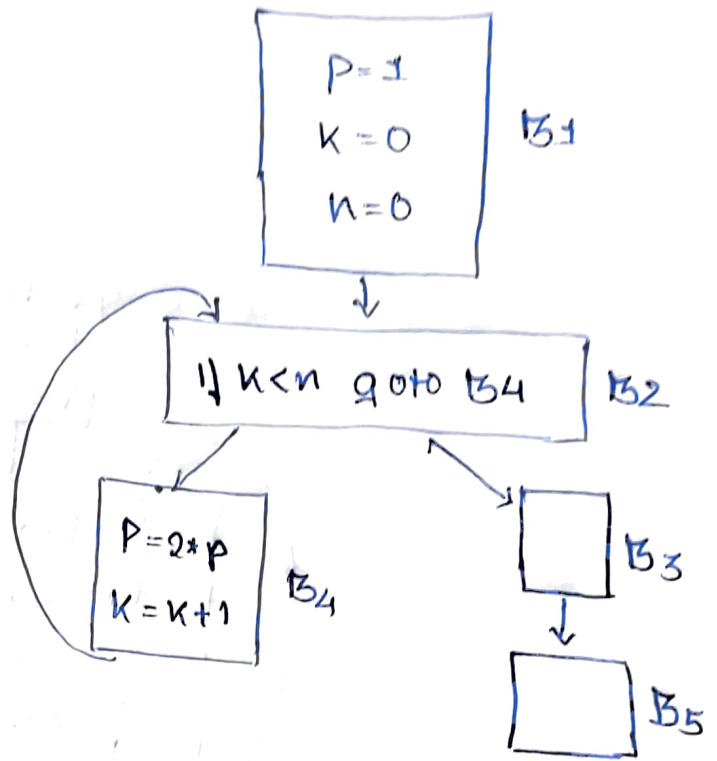
2. Code :

```
int p=1, k=0, n;  
while (k < n) {  
    p = 2 * p;  
    k = k + 1;  
}
```

a) 3-Address Instructions

1. $p = 1$
2. $k = 0$
3. $n = 0$
4. if $k < n$ goto (6)
5. goto (1)
6. $p = 2 * p$
7. $k = k + 1$
8. goto (4)

Leaders are 1, 4, 6, 9, 5



3. There are no loop invariant questions.

4. From B2, default edge is to B3
→ n is not initialized in given code, latest C compilers automatically initialize integers to 0. Then control. Then control never ending loop. So B4 becomes dead code.
- B3 & B5 are empty blocks.