1. Synchronize the following processes to display a message: "Em yêu anh không"

```
P1 {
    printf("Em");
}
```

```
P2 {
    printf("Yêu");
}
```

```
P3 {
    printf("Anh");
}
```

```
P4 {
    printf("Không");
}
```

1. Synchronize the following processes to display a message: "Em yêu anh không"

```
semaphore s1 = 0, s2 = 0, s3 = 0
```

```
P1 {
    printf("Em");
    up(s1);
}
```

```
P2 {
    down(s1);
    printf("Yêu");
    up(s2);
}
```

```
P3 {
    down(s2);
    printf("Anh");
    up(s3);
}
```

Em yêu anh không. Em yêu anh không. Em yêu anh không ...

2. Synchronize the following processes to display a message: "Anh không yêu em"

```
P1 {
    printf("Em");
}
```

```
P2 {
    printf("Yêu");
}
```

```
P3 {
    printf("Anh");
}
```

```
P4 {
    printf("Không");
}
```

2. Synchronize the following processes to display messages: "Anh không yêu em"

```
semaphore s2 = 0, s3 = 0, s4 = 0
```

```
P1 {
    down(s2);
    printf("Em");
    up(s1);
}
```

```
P2 {
    down(s4);
    printf("Yêu");
    up(s2);
}
```

```
P3 {
    down(s1);
    printf("Anh");
    up(s3);
}
```

```
P4 {
    down(s3);
    printf("Không");
    up(s4);
}
```

Anh không yêu em. Anh không yêu em. Anh không yêu em. ...

3. Consider two processes A et B as follows.

```
Process A {
    while(TRUE) {
        na = na + 1;
    }}
```

```
Process B {
     while(TRUE) {
        nb = nb + 1;
     }}
```

Synchronize A and B to ensure:

- a. $na \le nb + 10$ at any time
- b. nb < na <= nb + 10 at any time

3. Consider two processes A et B as follows.

```
semaphore sB = 10
```

```
Process A {
     while(TRUE) {
        down(sB);
        na = na + 1;
     }
}
```

```
Process B {
    while(TRUE) {
        nb = nb + 1;
        up(sB);
    }
}
```

Synchronize A and B to ensure:

```
a. na \le nb + 10 at any time
```

3. Consider two processes A et B as follows.

```
semaphore sB = 10, sA =
```

```
Process A {
    while(TRUE) {
        down(sB);
        na = na + 1;
        up(sA);
}}
```

```
Process B {
    while(TRUE) {
        down(sA);
        nb = nb + 1;
        up(sB);
}
```

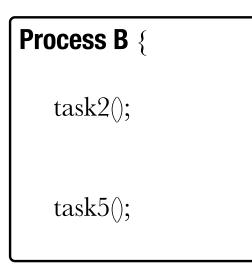
Synchronize A and B to ensure:

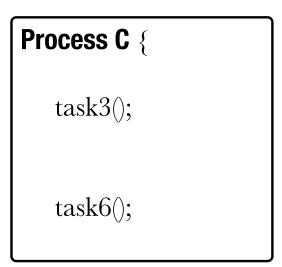
b. nb < na <= nb + 10 at any time

4. Consider three processes A, B, and C as follows.

Semaphore s1=..., s2=..., s3=..., s4=..., s5=..., s6=...

Process A { task1(); task4();





Synchronize these three processes to ensure execution order as follows: $task1 \rightarrow task2 \rightarrow ... \rightarrow task6 \rightarrow task1 \rightarrow task2$

4. Consider three processes A, B, and C as follows.

Semaphore s1=0, s2=0, s3=0, s4=0, s5=0, s6=1

Synchronize these three processes to ensure execution order as follows: $task1 \rightarrow task2 \rightarrow ... \rightarrow task6 \rightarrow task1 \rightarrow task2$