Exam 7

Question 1-

1. The difference between condition variable and event is that condition variable is that condition variable can't be detected by other process. Thus, if a process across or not a condition variable, the side effect will be only on this process. An event, may alert the other process. As an example, when we use up(mutex) such that processes are blocked in down(mutex) this is an event and then, one of the blocked process will be liberate.

2. The algorithm round robin is used in the network for example. Let a website have numerous url, such that all the url are connected to a different server. The goal of the algorithm is to share the url address such that all the server will work at the same level. To do this, he will take one of them randomly, and the second, he will take one of the url which provide the shorter work. The main idea of the algorithm is to give some work to the one which the least worker.

3. code:
Shared:
int count = number of processes
binary semaphore mutex = 1
binary semaphore sem = 0

```
void join_barrier()
        down(mutex)
        count--
        up(mutex)
        if (count != 0)
                down(sem)
        up(sem)
```

4.
a. true
b. false

Question 2-

Mutual exclusion:
Proof by using the flag[i] = true → interested and blocked the other.
Deadlock free:
Proof by using the flag[i] = true → interested and blocked the other.