1. When will the following CSP program terminate? (2×10 points)
   \[
   \text{ch : char; count : integer; count := 0;}
   \text{*[count < 501; one ? ch \rightarrow two ! ch];}
   \]
   a) When process one terminates. ________________________________________________
   b) When count becomes \( \geq 501 \). ______________________________________________

2. Consider a two-ring Totem system comprising rings A and B. Assuming that a given processor has received messages with the following timestamps from each ring:
   
<table>
<thead>
<tr>
<th>Rings</th>
<th>Messages</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>m(2h15), m(2h23)</td>
</tr>
<tr>
<td>B</td>
<td>m(2h10), m(2h25), m(2h30)</td>
</tr>
</tbody>
</table>

   Which messages will be delivered by the processor if all messages are agreed delivery messages? (2×10 points and no partial credit)

   The processor will deliver messages \_ m(2h15), m(2h23) \_ \_ from ring A and messages \_ m(2h10) \_ \_ from ring B.

3. How does BitTorrent enforce fairness? (20 points)
   
   Peers penalizes peers that do not send them enough data by "choking" them, that is, refusing to upload data to them for ten seconds.

4. How does Kerberos implement password changes? (20 points)
   
   Whenever there are more than one Kerberos servers, one of them can accept key change requests (primary server). To propagate these changes to the other servers, the primary server periodically sends to them an encrypted version of its current key list.

   This means that users cannot change their passwords when the primary server is down: changing passwords is not a critical task.)

5. Under the best possible circumstances how many read operations can be executed in parallel?
   
   a) By a RAID level 3 array with six disks? (10 points) Answer: \_ one 
   
   b) By a RAID level 5 array with the same number of disks? (10 points) Answer: \_ six 

   Explanation: In a RAID level 3 each read operation involves all the disks in the array.