UNIVERSITY of OULU

Dept. of Computer Science and Engineering

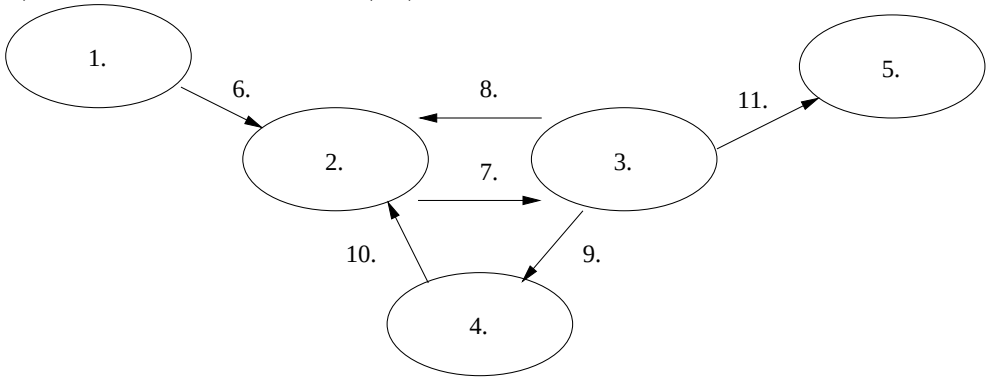
Operating Systems (521453A)
Examination 28.06.2014

1. Explain (6p)
   a) Deadlock
   b) Multithreading models
   c) Time sharing
   d) Demand paging

2. Present the requirements of a solution to the critical-section problem. Does the following algorithm satisfy all these requirements (justify)? If not, how would you modify the solution so that it would? (6p)

```
do {
   flag[i] = true;
   while (flag[j])
      ;   /* do nothing */

      critical section

   flag[i] = false;

      remainder section

} while(1);
```

3. a) Below there is a diagram of process' states and transitions between them. Name the entries 1.-11. (5p)
   b) What is device queue? (1p)



4. File system space allocation methods. (6p)