System Construction

Oral Exam Report

Course:	System Construction
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1 Explain how SPI work (draw waves)

CLK, CS/SS, MOSI, MISO
Pull CS low, start toggling clock, set/reset MOSI/MISO, sample on clock edge, pull CS high

2 How to wire master and slaves together?

CLK/MOSI/MISO same for all slaves and separate CS for each slave
can also use daisy-chain

3 How does CS/SS work?

If SS is not pulled low then data wires are in tri-state (don't know if that's correct)

4 Assume you have RPI with Minos how to protect against infinite loops?

Watchdog, reset timer in background task

5 What do we test if we reset timer in periodic task?

We test if interrupts (scheduling) still work

6 Explain the programming model of A2

Active Objects, AWAIT, EXCLUSIVE, ACTIVE

7 What are the states of a active object in A2?

Ready, Running, Terminated, Condition, Lock (draw state diagram)

8 How to implement conditions or locks?

Queues in object header which are protected by fine grained locks implemented in hardware

Then they run out of questions and asked me for what the CMPXCHG instruction in x86 can be used. I thought they mean CAS and explained how to implement a spin-lock with it but CMPXCHG is actually used to implement CAS.