1 Serialization

• How many clock signals it takes for serialized design to do something?
  – Depends on what you are trying to do. N bits may be N cycles.
  – Very dependent on what you are implementing.

2 Tri-state Buffers

• What is bus?
  – Bi-directional communication wire that is global to system and controlled by tri-state buffer.

3 FSM

• Why $\log_2 N$ state bits?
  – You need to represent each state using only bits.

4 Memory

• Addressability?
  – Number of bits in a specific address.

• What if $\overline{CS}$ is used instead of $CS$ in memory
  – Will have to complement the input your giving.

5 LC3 and von Neumann Model

• Why x3000?
  – To separate the instructions from data in the program.

• What is PC?
  – It points to the memory location that has the next instruction to execute.

• How to skip an instruction using BR?
  – Set offset such that PC points to the instruction after the one you want to skip.
• LEA vs LD?
  – LEA: Stores address
  – LD: Stores value at the address

• LD vs LDR?
  – LD: Access memory through PC+offset
  – LDR: Access memory through SR+offset

• What are operands in LC3 instructions?
  – The things that you use to calculate/execute the instruction.

• What is setcc?
  – States that the command changes the condition code (NZP).

• Do BR statements back to back use the same condition codes?
  – BR itself doesn’t change CC/NZP values.

• Does every instruction do FETCH?
  – Yes, every instruction.

• Does memory also have MDR in the von Neumann model?
  – Yes, Memory consists of MAR and MDR.

• What does program in LC3 refer to?
  – The set of instructions in memory.

• Aren’t all the instructions actually stored in IR?
  – No, IR stores the one instruction you are currently executing, not all of them.

6 Miscellaneous

• What does 1k mean?
  – 1k doesn’t mean 1000 in binary context. It means 1024 or $2^{10}$