

1. Briefly explain the following terms.
  - a. Dual Core
  - b. Hyperthreading
  - c. MIMD
  - d. Array Processor
  - e. Interleaved Memory
  - f. Reservation Station
  - g. RAW hazard
  - h. RAS/CAS
  - i. Set Associative Memory
  - j. Flash RAM
2. Draw an Omega network that connects 8 CPUs to 8 memories.
3. Explain what happens during a USB transaction that reads a block of data from a device end-point.
4. Draw a picture of a MOSFET and explain how it works.
5. Explain the structure of the following network topologies. How many connections per CPU are required?
  - a. Hypercube
  - b. Ring
  - c. Bus
  - d. Fully connected (Dedicated path between each pair of CPUs)
6. What is a Beowulf cluster and how does it work?
7. What are the advantages and disadvantages of compressing memory/cache? Is it worth it to do so?
8. What is Amdahl's law? Is there any way to mitigate its effects?