

**Due in class at 5pm on Monday 26 September 2005**  
typed answers preferred

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1. MIMD systems can be classified as either shared-memory multiprocessors or distributed-memory multicomputers. How would these two types of machines be used or programmed differently? What type of applications is each most appropriate for?
2. One distributed system model is the “processor pool” model. What are the features or distinguishing characteristics of this model? What are the challenges involved in designing a system to use this model?
3. When data is broken up into packets to send over a network, either all packets could be sent along the same route, or each could be routed independently. What are the advantages of each of these two methods?
4. If a server’s reply is lost or delayed, it is acceptable to retransmit the request only if the request is idempotent. Give an example of an idempotent request, and one which is not idempotent. Can a non-idempotent request be converted into an idempotent request?
5. Suppose a set of processors externally synchronize to an authoritative time source. Does that mean the set is now internally synchronized? Explain.

My homework assignments are intended to test your knowledge of some of the material presented in my lectures and in the textbook. On these homeworks, I expect clear, well-focused answers to the questions asked, answers that balance brevity and detail. While brevity is desirable, one-sentence “answers”, or lists of examples without further explanation, will probably not suffice. While detail and examples are desirable, two-page answers to each question are probably unnecessary.

Furthermore, unattributed “quoting” of sentences from the class textbook, from other textbooks, from the Internet, or from anywhere else will be considered plagiarism and is totally unacceptable (see the section on the course syllabus on Academic Dishonesty). I expect you to answer the question in **your own words** to convince me that you understand the material.