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CS 6/73201 Exam #1 Advanced OS

Wednesday 21 February 2001

1.	In the case of a parallel	or distributed system	, what is meant by each	of the following terms:
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a. tightly-coupled hardware (5 points)

b. loosely-coupled hardware (5 points)

c. tightly-coupled software (5 points)

d. loosely-coupled software (5 points)

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- 2. There are many possible organizations of a distributed system.
 - a. Briefly describe the workstation-server model. (8 points)

b. Briefly describe the processor-pool model. (7 points)

3. In a client / server information system, what capabilities are provided by calendar / scheduling products that are not provided by a paper calendar on the wall of your office? (10 points)

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- 4. Consider the "star" network topology.
 - a. Briefly describe this topology (draw a diagram if you like). (5 points)

b. What are the advantages and disadvantages of this topology? (5 points)

c. Does a star ever make sense as a physical network topology? Explain. (5 points)

d. Does a star ever make sense as a logical network topology? Explain. (5 points)

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5. Explain how the TCP network protocol ensures that the packets that make up a message do not get lost or corrupted during transmission. (15 points)

- 6. A message passing system often provides some form of "mailboxes".
 - a. Explain what is meant by a "mailbox" in a message-passing system. (10 points)

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b. Does MPI provide a mailbox, or something that provides similar functionality? Explain. (5 points)

7. What does the MPI_Waitall function do? (5 points)