

1. Medium Access Control
 - (a) What is CSMA? Describe how it works. (10%)
 - (b) Compare CSMA to ALOHA. Which perform better? Why? (10%)
 - (c) How do CSMA/CA and CSMA/CD work? Compare their differences. Which scheme is more suitable in which usage scenario? (10%)

2. Transport Layer
 - (a) Describe AIMD. What is the design philosophy of AIMD? (10%)
 - (b) What happen if TCP operates in a network with very long end-to-end delay (e.g. > 1 second)? What's the performance challenge? How do you improve it? (10%)
 - (c) What happen if TCP operates in a network with high packet loss rate? What's the performance challenge? How do you improve it? (10%)

3. Network
 - (a) Describe two main purposes of using IP addresses? (10%)
 - (b) Compare distance vector and link state routing protocols. What are the advantages and disadvantages? (10%)

4. WWW
 - (a) Assume you use http and TCP to browse website. Describe how a WWW session is established. Describe both http and TCP behaviors. (10%)

5. What do you know about socket programming? If you could give a programming example, please do so. If not, you could describe how it works. (10%)

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