Brooklyn College, CIS Dept, CIS 749
Midterm Exam

Name: _____

Section: _____ Id.: _____

(*Each question is worth 5 points. You get 2 points for leaving an answer blank. You get no points for a wrong answer.*)

1. (5 pts) Define *network*. What are some uses of a typical data network?

2. (5 pts) Explain the terms *source*, *medium*, *sink*, and *protocol*.

3. (5 pts) Distinguish between LANs, MANs, and WANs. Give examples where a LAN may span countries.

4. (5 pts) Why are fully interconnected *physical* mesh networks rarely installed? What about *logical* networks?

5. (5 pts) In a ring network, if a token gets lost (the computer that has it crashes), explain how the remaining computers *might* regenerate the token. I'm looking for your reasoning on how it *might* work—not nessasarily how it really works.

6. (5 pts) What is the ISO's OSI reference model? Why is it important for you to learn about it? Why is it impractical?

7. (5 pts) What are the functions of the OSI physical link, data link, and network layers? What is the TCP/IP equivalent of those?

8. (5 pts) What is the function of the internet layer in a TCP/IP-based network? How does it work? Explain.

9. (5 pts) Define the terms *segmentation* and *reassembly* as they apply to communication. How does it work? Explain.

10. (5 pts) Explain the term *protocol stack.* Describe situations where it would be useful not to implement the full stack.

11. (5 pts) Identify several types of addresses that are required as a message moves from the application layer on one computer to the application layer on another.

12. (5 pts) Explain the term *modulation.* For what is it used?

13. (5 pts) Distinguish between *synchronous* and *asynchronous*. Give examples were each one may be used.

14. (5 pts) Explain the difference between *time domain* and *frequency domain*. How do we go from one to

the other?

15. (5 pts) Describe the function of a router. Explain why is it important for any routing technique to have alternate routes available to send messages.

16. (5 pts) Describe the difference between TCP, UDP, and IP. If you wanted to send a file, which one would you use? If you wanted to send live video, which one would you use?

17. (5 pts) What is the purpose of DNS? Explain how domain names are resolved. Why is cache important?

18. (5 pts) Describe how TCP works; how it manages to be reliable over an unreliable network. Explain situations where it won't be reliable.

19. (5 pts) Explain the purpose of TCP/IP's sub-protocols such as: IP, ICMP, ARP, UDP, and TCP. For what are they used?

20. (5 pts) List all seven ISO's OSI layers, and their purpose.