1. What are the major principles behind layering?
2. What are the advantages of layered architecture?
3. What are the disadvantages of layered architecture?
4. Briefly describe the major functionality of:
   1. Physical layer
   2. Data Link layer
   3. Network layer
   4. Transport layer
   5. Session layer
   6. Presentation layer
   7. Application layer
5. What are the major differences between OSI protocol stack and TCP/OP (IETF) protocol stack?
6. How do we measure quality of service?
7. What are the major differences between circuit-switching and packet-switching?
8. When we say a reliable connection, what do we mean by that? What is needed to make a reliable connection?
9. Explain why TCP/IP has 4 layers and OSI has 7 layers.
10. Describe the major characteristics of a signal:
    1. Frequency
    2. Period
    3. Phase
    4. Wavelength
    5. Spectrum
11. What is the difference between analog and digital signals?
12. What is the difference between analog and digital transmissions?
13. What is attenuation and how do we handle it?
14. What is the major difference between an amplifier and a repeater?
15. What are the advantages/disadvantages of analog transmission?
16. What are the advantages/disadvantages of digital transmission?
17. What are the major transmission impairment?
18. What is delay distortion?
19. How do we measure capacity?
20. What is the major difference between Bandwidth and Data Rate?
21. What does Nyquist's Theorem say?
22. What does Shannon's Theorem say?
23. What is the main difference between single mode and multi mode fiber optics?
24. What are advantages/disadvantages of satellite communications?
25. What is modulation? What are their classifications?
26. What is modulation rate?
27. What are the major components of a delay suffered by a packet? Which one is deterministic (predictable)? Which one is non-deterministic (probabilistic)?
28. How do we calculate the length of a packet in time?
29. How do we calculate the length of a packet in meters?
30. What is the major difference between Bandwidth, Throughput and efficiency?
31. Manchester and Differential Manchester coding are the two most popular data coding. Explain how they work
32. What is the main difference between multiplexing and multi access?
33. Discuss the difference between Frequency Hopping and Direct Sequence and show how they work?
34. What is Time-Division Multiplexing (TDM) and how it works
35. What is Frequency-Division Multiplexing (FDM) and how it works
36. What is Code-Division Multiplexing (CDM) and how it works
37. What is Wave-Division Multiplexing (WDM) and how it works
38. What is Spread Spectrum?
39. What is Frequency Hopping and how it works?
40. What is Direct Sequence and it works?