

1. How to transform analog and digital data into analog and digital signals. (10%)
2. Please describe the following terminologies:
 - (1) Pulse code Modulation
 - (2) The relationship between baud rate and bit rate
 - (3) Time Division Multiplexing
 - (4) The Basic Rate Interface for ISDN
 - (5) Open System Interconnection (OSI) Reference Model. (10%)
3. Please describe the difference between synchronization and asynchronization for data communication. (10%)
4. What is the difference between Frequency Modulation (FM) and Frequency Division Multiplexing (FDM)? (10%)
5. 24 voice signals are to be multiplexed and transmitted over twisted pair, what is the bandwidth required for FDM? (10%)
6. Explain the difference between in channel signaling and common channel signaling. (10%)
7. Please depict four kinds of Local Area Network (LAN) topologies, and describe the LAN's protocols. (10%)
8. Please distinguish from the analog signal and digital signal. (10%)
9. It is impossible to send data over the local telephone line without using a modem. Why? Please explain the reasons. (10%)
10. What is the protocols adopted by Internet? And describes their functions of protocol layers. (10%)