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| PAPER 2 |
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* 1. 5 (Presentation)
  2. 5 (network access)
  3. 2 (modulation)
  4. 4 (Self clocking)
  5. 3 (Advanced mobile phone service (AMPS))
  6. 4 (Bluetooth)
  7. 3 (mechanical)
  8. 3 (SCSI)
  9. 1 (Wave division multiplexing)
  10. 4 (Wavelength)
  11. 11(frequency division)
  12. 9 (Network)
  13. 4 (Application)
  14. 1 (Quadrature phase)
  15. 6 (WiMAX)
  16. 8(InfiniBand)
  17. 2 (procedural)
  18. 10 (Discrete multitone)
  19. 5 (intermodulation distortion)
  20. 3 (synchronous time division)
  21. LANs allow microcomputers to share hardware, resulting in increased peripheral device usage and significant cost savings. Data and software can also be shared via LANs. Multiple users can simultaneously access a central database, decreasing inefficiencies and eliminating the need for multiple copies.
  22. Noise has analog waveform qualities and so can occupy an infinite range of values, whereas digital waveforms can only occupy a finite range of values.

It is rather straightforward to separate the original digital waveform from analog noise when they're combined.

If the level of noise is low enough to allow the original digital waveform to be interpreted, the noise can be filtered out, leaving only the original waveform. If, on the other hand, the noise becomes so bad that it's impossible to tell a high from a low, the signal has been taken over by the noise, and you can't interpret this part of the waveform.

* 1. 🡪It is similar to the category 5 which typically use of Lan. 🡪The maximum data transfer rate 250 Mbps per pair (125 MHz). 🡪The maximum transmission range 100 meters. 🡪The advantages were, easy to install and inexpensive. 🡪The disadvantage were, Security, noise and obsolete.
  2. 1. Use a separate line parallel to the data stream to send a synchronizing clock signal. A clock signal enters on a second line as the data arrives on the first. This clock signal can be used by the receiver to keep up with the incoming data.

2. Use a Manchester code when delivering a digital signal. Because a signal transition occurs in the middle of each bit in a Manchester code, the receiver may anticipate the signal transition and interpret the incoming data stream without mistakes. A self-clocking signal is a digital signal that has been Manchester encoded.  
  
3.When transmitting an analog signal, use the analog signal's features for self-clocking. An analog signal with a periodic phase change, for example, can provide the required synchronization.

* 1. 🡪Noise problems with analog signals. 🡪Potentially wastes bandwidth. 🡪Limited by frequency ranges.

T-1 multiplexing divides the output stream of the T-1 multiplexor into 24 distinct digitized voice/data channels of 64 kbps each. A complete T-1 is used by users who need to use all 24 channels, whereas a fractional T-1 is used by those who just need to use a portion of the 24 channels.

The T-1 multiplexed stream is a loop of frames that repeats indefinitely. Each frame contains one byte from each of the 24 users (channels) plus one synchronization bit. As a result, data from the first user is followed by data from the second user, and so on, until data from the 24th user is followed by data from the first user once again.

If one of the 24 input sources has no data to transmit, the space within the frame is still allocated to that input source. The input data from a maximum of 24 devices is assigned to fixed intervals. Each device can transmit only during that fixed interval.

If a device has no significant data to transmit, the time slot is still assigned to that device, and data such as blanks, or zeros are transmitted.