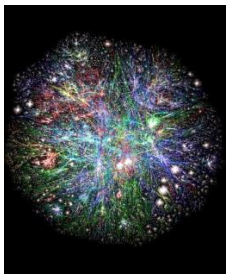
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Question bank accompanying Business Data Communications and IT Infrastructures

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Chapter 2 – Physical Layer

1. Signaling is

a) Converting data to signals for transmission over physical media
b) The transmission path over which information propagates
c) Wiring cables between locations
d) Combining multiple signals for transmission over one medium

Answer: (a) **Easy**

2. A Signal is

a) Information added to data to remove errors
b) Detectable transmitted energy that can be used to carry information
c) Cables connecting networked locations
d) Converting data to signals for transmission over physical media

Answer: (b) **Easy**

3. The only layer in the TCP/ IP stack that deals with the limitations of nature is

a) The Data link layer
b) The Network layer
c) The Physical layer
d) The Transport layer

Answer: (c) **Easy**

4. Signals in copper wire are transmitted as

a) Sound signals
b) Light signals
c) Smoke signals

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d) Electrical signals

Answer: (d) **Easy**

5. A physical medium is

a) The transmission path over which a signal propagates
b) The method of combining multiple signals for transmission over one medium
c) Used to convert data to signals for transmission
d) Detectable transmitted energy that can be used to carry information

Answer: (a) **Easy**

6. The term UTP stands for

a) Unshielded telephone pair
b) Unshielded twisted pair
c) Uncovered twisted pair
d) Uncovered telephone pair

Answer: (b) **Easy**

7. Cat 5 cable has _____ wires

a) 4
b) 6
c) 8
d) 10

Answer: (c) **Difficult**

8. As a physical medium, copper possesses all of the following properties, except

a) Copper is relatively abundant
b) Copper is a good conductor of electricity
c) Copper is relatively inexpensive
d) Copper can transmit information over very long distances

Answer: (d) **Easy**

9. Cat 5 cable is terminated using connectors called

a) RJ 45 connectors
b) RJ 11 connectors
c) RJ 19 connectors

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d) RJ 54 connectors

Answer: (a) **Moderate**

10. Single mode fiber is preferred over multi-mode fiber for short distances

a) True
b) False

Answer: (b) **Difficult**

11. As a physical medium, optical fiber possesses all of the following properties, except

a) It is relatively light in weight
b) It can carry signals for long distances without the need for repeaters
c) It is as robust as copper in withstanding abuse
d) It is relatively inexpensive

Answer: (c) **Easy**

12. Data is converted to signals for transmission because

a) Data is expensive to transport over physical media
b) Signals are inexpensive to transport over physical media
c) Network carriers prefer to transport signals
d) There is no known method to transport data over physical media

Answer: (d) **Moderate**

13. Good signals have all the following properties except

a) Good signals do not need to be multiplexed
b) Good signals are efficient at using bandwidth
c) Good signals are resistant to noise
d) Good signals are easy to detect at the receiver's end

Answer: (a) **Easy**

14. Amplitude is a measure of

a) The number of cycles made by a sine wave in one second
b) The height of a sine wave
c) The position of a sine wave at the start time
d) None of the above

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Answer: (b) **Easy**

15. Modulation is the process of

a) Spinning a wheel to generate a sine wave
b) Increasing the amplitude of a sine wave
c) Changing one or more properties of a sine wave in response to data
d) Increasing the frequency of a sine wave

Answer: (c) **Difficult**

16. Quadrature amplitude modulation

a) Is another name for amplitude modulation
b) Combines amplitude modulation with frequency modulation
c) Is another name for frequency modulation
d) Combines amplitude modulation with phase modulation

Answer: (d) **Difficult**

17. Binary signals are preferred over other forms of signals (ternary, decimal etc) because

a) Binary signals are the easiest to detect reliably by the receiver
b) Binary signals can carry the most amount of information in a given time period
c) Binary signals are the fastest known means of transmitting data
d) Binary signals are the easiest to generate for the sender

Answer: (a) **Moderate**

18. A bit

a) Transforms elements from one set of elements to another set
b) Is the unit of information that designates one of two possible states
c) Generates sine waves for transmission over a medium
d) Changes one or more properties of a sine wave in response to data

Answer: (b) **Easy**

19. Coding is

a) The unit of information
b) The generation of sine waves for transmission over a medium
c) The transformation of elements from one set of elements to another set
d) Changing one or more properties of a sine wave in response to data

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Answer: (c) **Moderate**

20. Noise is

a) The transformation of elements from one set of elements to another set
b) The generation of sine waves for transmission over a medium
c) Changing one or more properties of a sine wave in response to data
d) Any disturbance that interferes with the normal operation of a device

Answer: (d) **Easy**

21. The ASCII code is used to encode

a) Characters in the English alphabet
b) Characters in the Chinese language
c) Characters in all languages
d) Characters in most languages spoken around the world

Answer: (a) **Difficult**

22. Unicode is used to encode

a) Characters in the English alphabet only
b) Characters in most languages
c) Characters in the Chinese language only
d) Characters in the 5 most common languages spoken around the world

Answer: (b) **Difficult**

23. In TDM

a) Signals from each channel are sent at a specified frequency
b) Signals from each channel are sent at a specified amplitude
c) Signals from each channel are sent at a specified time
d) Signals from each channel are sent at a specified phase

Answer: (c) **Easy**

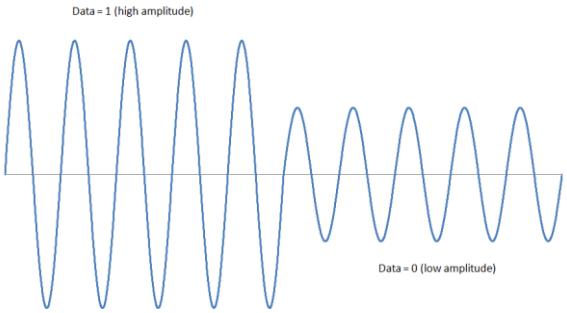
24. In FDM

a) Signals from each channel are sent at a specified amplitude
b) Signals from each channel are sent at a specified phase
c) Signals from each channel are sent at a specified time
d) Signals from each channel are sent at a specified frequency

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Answer: (d) **Easy**

25. The figure shows an example of



a) Digital data transmitted using an analog signal
b) Digital data transmitted using a digital signal
c) Analog data transmitted using a digital signal
d) Analog data transmitted using an analog signal

Answer: (a) **Difficult**

26. Consider two communication technologies that share the same medium (therefore assume that the SNR is the same in both technologies). Technology B uses twice the bandwidth of technology A. If technology A has a data rate of 50kbps, technology B has a data rate of

a) 50kbps
b) 100kbps
c) 55kbps
d) Cannot be estimated with the available data

Answer: (b) **Difficult**

27. Consider two communication technologies that use the same bandwidth, but Technology B has twice the SNR of technology A. If technology A has an SNR of about 1,000 and a data rate of about 50kbps, technology B has a data rate of

a) 50kbps
b) 100kbps
c) 55kbps
d) Cannot be estimated with the available data

Answer: (c) **Difficult**