

# MULTIPLE CHOICE QUESTIONS IN DATA COMMUNICATIONS AND NETWORKING

## A Complete Chapter Quiz

### Bandwidth Utilization: Multiplexing and Spreading

Compilation of all the quizzes (MCQs) for each and every chapters in the book of Data Communications and Networking 4th Edition by Behrouz A. Forouzan.

1. The \_\_\_\_\_ technique uses M different carrier frequencies that are modulated by the source signal. At one moment, the signal modulates one carrier frequency; at the next moment, the signal modulates another carrier frequency.

- A) DSSS
- B) FHSS**
- C) FDM
- D) TDM

2. In synchronous TDM, for n signal sources of the same data rate, each frame contains \_\_\_\_\_ slots.

- A)  $n + 1$
- B)  $n - 1$
- C) 0 to n
- D) n**

3. Which multiplexing technique transmits digital signals?

- A) WDM
- B) FDM
- C) TDM**
- D) None of the above

4. The sharing of a medium and its link by two or more devices is called \_\_\_\_\_.

- A) modulation
- B) multiplexing**
- C) encoding
- D) line discipline

5. \_\_\_\_\_ is designed to be used in wireless applications in which stations must be able to share the medium without interception by an eavesdropper and without being subject to jamming from a malicious intruder.

- A) Multiplexing
- B) Spread spectrum**

- C) Modulation
- D) None of the above.

6. \_\_\_\_\_ is an analog multiplexing technique to combine optical signals.

- A) WDM**
- B) FDM
- C) TDM
- D) None of the above

7. FDM is an \_\_\_\_\_ technique.

- A) digital
- B) analog**
- C) either (a) or (b)
- D) none of the above

8. \_\_\_\_\_ can be applied when the bandwidth of a link (in hertz) is greater than the combined bandwidths of the signals to be transmitted.

- A) TDM
- B) FDM**
- C) Both (a) or (b)
- D) Neither (a) or (b)

9. In TDM, the transmission rate of the multiplexed path is usually \_\_\_\_\_ the sum of the transmission rates of the signal sources.

- A) equal to
- B) less than
- C) greater than**
- D) not related to

10. In a multiplexed system, \_\_\_ lines share the bandwidth of \_\_\_ link.

- A) 1; n
- B) n; 1**
- C) 1; 1
- D) n; n

11. \_\_\_\_\_ utilization is the use of available bandwidth to achieve specific goals.

- A) Amplitude  
 B) Frequency  
 C) Bandwidth  
 D) None of the above
12. \_\_\_\_\_ is designed to use the high bandwidth capability of fiber-optic cable.  
 A) WDM  
 B) FDM  
 C) TDM  
 D) None of the above
13. We can divide \_\_\_\_\_ into two different schemes: synchronous or statistical.  
 A) WDM  
 B) TDM  
 C) FDM  
 D) none of the above
14. In \_\_\_\_\_ TDM, each input connection has an allotment in the output even if it is not sending data.  
 A) isochronous  
 B) statistical  
 C) synchronous  
 D) none of the above
15. In \_\_\_\_\_ TDM, slots are dynamically allocated to improve bandwidth efficiency.  
 A) isochronous  
 B) synchronous  
 C) statistical  
 D) none of the above
16. The word \_\_\_\_\_ refers to the portion of a \_\_\_\_\_ that carries a transmission.  
 A) line; channel  
 B) channel; link  
 C) link; channel  
 D) line; link
17. Which multiplexing technique shifts each signal to a different carrier frequency?  
 A) FDM  
 B) TDM  
 C) Both (a) and (b)  
 D) None of the above
18. Which multiplexing technique transmits analog signals?  
 A) WDM  
 B) TDM  
 C) FDM  
 D) (a) and (c)
19. \_\_\_\_\_ is the set of techniques that allows the simultaneous transmission of multiple signals across a single data link.  
 A) Demodulating  
 B) Multiplexing  
 C) Compressing  
 D) None of the above
20. \_\_\_\_\_ can be achieved by using multiplexing; \_\_\_\_\_ can be achieved by using spreading.  
 A) Privacy and antijamming; efficiency  
 B) Privacy and efficiency; antijamming  
 C) Efficiency; privacy and antijamming  
 D) Efficiency and antijamming; privacy
21. The \_\_\_\_\_ technique expands the bandwidth of a signal by replacing each data bit with n bits.  
 A) DSSS  
 B) FHSS  
 C) FDM  
 D) TDM
22. \_\_\_\_\_ is a digital process that allows several connections to share the high bandwidth of a link.

A) WDM

B) TDM

C) FDM

D) None of the above

23. \_\_\_\_\_ is a digital multiplexing technique for combining several low-rate channels into one high-rate one.

A) WDM

B) TDM

C) FDM

D) None of the above

24. In \_\_\_\_\_, we combine signals from different sources to fit into a larger bandwidth.

A) line coding

B) block coding

C) spread spectrum

D) none of the above

25. Which multiplexing technique involves signals composed of light beams?

A) WDM

B) FDM

C) TDM

D) none of the above