United College of Engineering and Research, Allahabad

Department of Computer Science & Engineering

B.Tech CSE- VI Semester

Set-1

Course Name: Computer Network **AKTU Course Code:** KCS-603

1. Which of the following is a component of delay in computer networks?
A. Processing delay
B. Propagation delay
C. Transmission delay
D. All of the above

2. Which of the following is an example of propagation delay?
A. The time it takes for a packet to be transmitted from one node to another.
B. The time it takes for a signal to travel over a wire.
C. The time it takes for a packet to be processed by a node.
D. None of the above

3. What is latency in computer networks?
A. The time it takes for a signal to travel over a wire.
B. The time it takes for a packet to be transmitted from one node to another.
C. The time it takes for a packet to be processed by a node.
D. The time it takes for a packet to be acknowledged by the receiving node.

4. Which of the following factors affect the throughput of a network?
A. Bandwidth
B. Latency
C. Both A and B
D. None of the above

5. What is the relationship between latency and throughput?
A. Higher latency leads to higher throughput.
B. Higher latency leads to lower throughput.
C. Lower latency leads to higher throughput.
D. There is no relationship between latency and throughput.

6. What is the transmission delay of a 1000-bit packet sent over a 10 Mbps network with a 1 Mbps link?
A. 0.01 seconds
B. 0.1 seconds
C. 1 second
D. 10 seconds

7. A signal travels through a 10 km long cable with a propagation speed of 200,000 km/s. What is the propagation delay?
A. 0.00005 seconds
B. 0.05 seconds
C. 0.5 seconds
D. 5 seconds

8. If a packet takes 10 milliseconds to travel from source to destination and back, what is the round-trip time (RTT)?
A. 5 milliseconds
B. 10 milliseconds
C. 20 milliseconds
D. 40 milliseconds

9. What is the throughput of a 10 Mbps network with a 100 millisecond round-trip time and a 1000-byte packet size?
A. 10 Mbps
B. 8 Mbps
C. 6.4 Mbps
D. 1.25 Mbps

10. A network has a bandwidth of 100 Mbps and a propagation delay of 1 millisecond. What is the maximum number of bits that can be in flight (i.e., simultaneously transmitted) on this network?
A. 100,000 bits
B. 10,000 bits
C. 100,000,000 bits
D. 1,000,000 bits

11. Which of the following is true about a digital signal?
A. It can have an infinite number of values.
B. It is continuous.
C. It is discrete.
D. It is analog.

12. What is the Nyquist bit rate for a signal with a bandwidth of 500 Hz and a signal-to-noise ratio of 16 dB?
A. 1000 bps
B. 1500 bps
C. 2000 bps
D. 2500 bps

13. What is the Shannon capacity for a signal with a bandwidth of 2000 Hz and a signal-to-noise ratio of 25 dB?
A. 1000 bps
B. 1500 bps
C. 2000 bps

D. 2500 bps

14. Which of the following is true about the Nyquist bit rate?
A. It is always equal to the Shannon capacity.
B. It is always less than the Shannon capacity.
C. It is always greater than the Shannon capacity.
D. It can be equal to, less than, or greater than the Shannon capacity depending on the circumstances.

15. Which of the following factors affect the Shannon capacity of a channel?
A. Bandwidth
B. Signal-to-noise ratio
C. Both A and B
D. None of the above

16. What is the maximum bit rate that can be transmitted over a channel with a bandwidth of 3000 Hz and a signal-to-noise ratio of 20 dB?
A. 6000 bps
B. 9000 bps
C. 12000 bps
D. 15000 bps

17. What is the minimum bandwidth required to transmit a signal at a bit rate of 5000 bps using binary phase shift keying (BPSK)?
A. 2500 Hz
B. 5000 Hz
C. 10000 Hz
D. 20000 Hz

18. What is the minimum signal-to-noise ratio required to transmit a signal at a bit rate of 10 kbps using quadrature phase shift keying (QPSK) over a channel with a bandwidth of 2000 Hz?
A. 20 dB
B. 25 dB
C. 30 dB
D. 35 dB

19. Which of the following is true about the signal-to-noise ratio?
A. It is measured in volts per hertz.
B. It represents the ratio of signal power to noise power.
C. A higher signal-to-noise ratio indicates a higher level of noise.
D. A lower signal-to-noise ratio indicates a lower level of noise.

20. What is the maximum bit rate that can be transmitted over a channel with a bandwidth of 10 kHz and a signal-to-noise ratio of 50 dB?
A. 5000 bps
B. 10000 bps
C. 20000 bps
D. 40000 bps

21. Which of the following is not a layer of the OSI model?
A. Application
B. Presentation
C. Session
D. Database

22. Which layer of the OSI model is responsible for establishing, managing, and terminating connections between applications on different devices?
A. Application
B. Transport
C. Network
D. Session

23. Which layer of the OSI model is responsible for routing packets between networks?
A. Application
B. Transport
C. Network
D. Data Link

24. Which layer of the OSI model is responsible for converting data between different formats or character sets?
A. Physical
B. Data Link
C. Presentation
D. Transport

25. Which layer of the OSI model is responsible for error detection and correction?
A. Physical
B. Data Link
C. Network
D. Transport

26. Which layer of the OSI model is responsible for dividing data into smaller packets and ensuring they are transmitted error-free?
A. Physical
B. Data Link
C. Transport
D. Application

27. Which layer of the OSI model is responsible for providing end-to-end message delivery between applications?
A. Transport
B. Network
C. Data Link
D. Physical

28. Which layer of the OSI model is responsible for synchronizing the data transmission rate between two devices?

A. Physical
B. Data Link
C. Transport
D. Application

29. Which layer of the OSI model is responsible for establishing and maintaining a connection between two devices?
A. Application
B. Transport
C. Network
D. Session

30. Which layer of the OSI model is responsible for translating IP addresses into MAC addresses?
A. Application
B. Transport
C. Network
D. Data Link

31. Which of the following topologies uses a central hub or switch to connect all devices in the network?
A. Bus
B. Ring
C. Star
D. Mesh

32. In which topology are each node connected to exactly two other nodes in a closed loop?
A. Bus
B. Ring
C. Star
D. Mesh

33. Which topology is known for its fault tolerance, since any node can communicate with any other node through multiple paths?
A. Bus
B. Ring
C. Star
D. Mesh

34. Which topology is not recommended for large networks due to the number of cables required to connect all nodes?
A. Bus
B. Ring
C. Star
D. Mesh

35. Which topology provides the highest level of redundancy, since every node is connected to every other node?
A. Bus

B. Ring
C. Star
D. Mesh

36. Which of the following is not a function of the physical layer?
A. Transmission of data
B. Encoding and decoding of data
C. Error detection and correction
D. Synchronization of data

37. Which of the following is not a type of guided transmission media?
A. Coaxial cable
B. Twisted pair cable
C. Fiber optic cable
D. Infrared transmission

38. Which of the following is not a type of wireless transmission media?
A. Radio waves
B. Microwave
C. Infrared waves
D. Twisted pair cable

39. Which of the following is not a transmission mode?
A. Simplex
B. Half-duplex
C. Full-duplex
D. Multiplex

40. What is the unit of measurement for data transfer rate?
A. Bits per second
B. Bytes per second
C. Hertz
D. Frames per second

41. Which of the following is not a data encoding scheme?
A. Unipolar
B. Bipolar
C. Manchester
D. Spatial

42. Which of the following is not a noise type in a communication system?
A. Thermal noise
B. Shot noise
C. Amplifier noise
D. Infrared noise

43. What is the function of a repeater in a communication system?
A. To regenerate and amplify signals

B. To filter out unwanted signals
C. To switch between different transmission modes
D. To control the flow of data

44. Which of the following is not a modulation technique?
A. Amplitude modulation
B. Frequency modulation
C. Phase modulation
D. Noise modulation

45. Which of the following is not a digital transmission technique?
A. Amplitude-shift keying (ASK)
B. Frequency-shift keying (FSK)
C. Phase-shift keying (PSK)
D. Analog modulation

46. Which of the following is not a channel capacity formula?
A. Shannon's capacity formula
B. Hartley's law
C. Nyquist's law
D. Ohm's law

47. What is the purpose of a transceiver in a communication system?
A. To transmit and receive signals
B. To filter out unwanted signals
C. To regenerate and amplify signals
D. To control the flow of data

48. Which of the following is not a line coding scheme?
A. Manchester coding
B. Differential Manchester coding
C. Bipolar encoding
D. Frequency-shift keying (FSK)

49. Which of the following is not a type of multiplexing?
A. Frequency division multiplexing (FDM)
B. Time division multiplexing (TDM)
C. Code division multiplexing (CDM)
D. Amplitude modulation (AM)

50. What is the purpose of a modem in a communication system?
A. To convert digital signals to analog signals and vice versa
B. To filter out unwanted signals
C. To switch between different transmission modes
D. To control the flow of data

51. What is the purpose of a protocol analyzer in a communication system?
A. To capture and analyze network traffic

B. To regenerate and amplify signals
C. To switch between different transmission modes
D. To control the flow of data

52. Which of the following is not a type of digital signal?
A. Analog signal
B. Binary signal
C. Multi-level signal
D. Multi-state signal

53. Which of the following is not a type of multipath distortion?
A. Delay distortion
B. Attenuation distortion
C. Frequency distortion
D. All of the above

54. Which of the following is not a characteristic of a good transmission medium?
A. High bandwidth
B. Low attenuation
C. Low noise
D. High latency

55. Which of the following is not a type of transmission impairment?
A. Attenuation
B. Delay distortion
C. Interference
D. Channel switching

56. What is the difference between analog and digital signals?
A. Analog signals can take on any value, while digital signals have discrete values
B. Analog signals have discrete values, while digital signals can take on any value
C. Analog signals are easier to transmit than digital signals
D. Digital signals are less prone to interference than analog signals

57. What is the Nyquist theorem?
A. The maximum data rate of a channel is proportional to the channel bandwidth
B. The minimum sampling rate required to reconstruct a signal is twice the signal bandwidth
C. The maximum data rate of a channel is proportional to the signal-to-noise ratio
D. The minimum sampling rate required to reconstruct a signal is equal to the signal bandwidth

58. Which of the following is not a type of digital modulation?
A. Amplitude-shift keying (ASK)
B. Frequency-shift keying (FSK)
C. Phase-shift keying (PSK)
D. Amplitude modulation (AM)

59. What is the purpose of a network interface card (NIC)?
A. To connect a computer to a network

B. To regenerate and amplify signals
C. To switch between different transmission modes
D. To control the flow of data

60. Which of the following is not a characteristic of a good channel?
A. Low bit error rate
B. High bandwidth
C. High latency
D. Low noise

Answer

1. D	2. B	3. B	4. C	5. B	6. A	7. B	8. C	9. C	10. D
11. C	12. A	13. C	14. B	15. C	16. C	17. A	18. D	19. B	20. C
21. D	22. D	23. C	24. C	25. B	26. B	27. A	28. C	29. D	30. D
31. C	32. B	33. D	34. A	35. D	36. A	37. B	38. C	39. B	40. A
41. B	42. A	43. C	44. A	45. B	46. A	47. C	48. D	49. C	50. A
51. C	52. A	53. D	54. D	55. D	56. A	57. B	58. D	59. A	60. C