Multiple Choice Questions in Data Communications and Networking

A Complete Chapter Quiz

Congestion Control and Quality of Service

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. _____ is a flow characteristic that applications can tolerate in different degrees.

A) Reliability
B) Delay
C) Jitter
D) Bandwidth

2. The _____ defines the maximum data rate of the traffic.

A) peak data rate
B) maximum burst size
C) effective bandwidth
D) none of the above

3. In Frame Relay, the _____ defines an average rate in bits per second.

A) access rate
B) committed burst size
C) committed information rate
D) excess burst size

4. In _____ congestion control, policies are applied to prevent congestion before it happens.

A) open-loop
B) closed-loop
C) either (a) or (b)
D) neither (a) nor (b)

5. In _____ we try to avoid traffic congestion.

A) congestion control
B) quality of service
C) either (a) or (b)
D) both (a) and (b)

6. _____ is a characteristic that a flow needs. Lack of it means losing a packet or acknowledgment, which entails retransmission.

A) Reliability
B) Delay
C) Jitter
D) Bandwidth

7. In a network, after the load reaches the capacity, throughput _____.

A) increases sharply
B) increases proportionally with the load
C) declines sharply
D) declines proportionally with the load

8. In _____ queuing, the packets are assigned to different classes and admitted to different queues. The queues, however, are weighted based on the priority of the queues; higher priority means a higher weight. The system processes packets in each queue in a round-robin fashion with the number of packets selected from each queue based on the corresponding weight.

A) FIFO
B) priority
C) weighted fair
D) none of the above

9. In ATM, the _____ class is a best-effort delivery service that does not guarantee anything.

A) CBR
B) VBR
C) ABR
D) UBR

10. The_____ normally refers to the maximum length of time the traffic is generated at the peak rate.

A) peak data rate
B) maximum burst size
C) effective bandwidth

D) none of the above

11. In _____ congestion control, mechanisms are used to alleviate congestion after it happens.

A) open-loop
B) closed-loop
C) either (a) or (b)
D) neither (a) nor (b)

12. _____ happens in any system that involves waiting.

A) Congestion
B) Jamming
C) Error
D) none of the above

13. In the _____ algorithm of TCP, the size of the congestion window increases exponentially until it reaches a threshold.

A) slow-start
B) congestion avoidance
C) congestion detection
D) none of the above

14. In Frame Relay, the user can never exceed the_____.

A) access rate
B) committed burst size
C) committed information rate
D) excess burst size

15. In the _____ algorithm of TCP, the size of the threshold is dropped to one-half, a multiplicative decrease.

A) slow-start
B) congestion avoidance
C) congestion detection
D) none of the above

16. In _____, when a source makes a reservation, it needs to define a flow specification.

A) Integrated Services
B) Differentiated Services
C) Connectionless
D) Connection-Oriented

17. A _____ traffic model has a data rate that does not change.

A) constant bit rate
B) variable bit rate
C) bursty
D) none of the above

18. _____ is the variation in delay for packets belonging to the same flow.

A) Reliability
B) Delay
C) Jitter
D) Bandwidth

19. A _____ is a packet sent by a node to the source to inform it of congestion.

A) backpressure
B) choke packet
C) implicit signaling
D) explicit signaling

20. In ATM, the _____ class delivers cells at a minimum rate. If more network capacity is available, this minimum rate can be exceeded.

A) CBR
B) VBR
C) ABR
D) UBR

21. In the _____ traffic model, the rate of the data flow changes in time, with the changes smooth instead of sudden and sharp.

A) constant bit rate
B) variable bit rate
C) bursty

D) none of the above

22. In _____, there is no communication between the congested node or nodes and the source. The source guesses that there is a congestion somewhere in the network from other symptoms.

A) backpressure
B) choke packet
C) implicit signaling
D) explicit signaling

23. In a network, when the load reaches the network capacity, the delay _____.

A) increases sharply
B) decreases sharply
C) remains constant
D) cannot be predicted

24. The technique of _____refers to a congestion control mechanism in which a congested node stops receiving data from the immediate upstream node or nodes.

A) backpressure
B) choke packet
C) implicit signaling
D) explicit signaling

25. In _____ queuing, packets are first assigned to a priority class. Each class has its own queue.

A) FIFO
B) priority
C) weighted fair
D) none of the above

26. In _____, queuing packets wait in a buffer (queue) until the node (router or switch) is ready to process them.

A) FIFO
B) priority
C) weighted fair
D) none of the above

27. Traditionally, _____types of characteristics are attributed to a flow.

A) two
B) three
C) four
D) five

28. In Frame Relay, the _____ is the maximum number of bits in excess of Bc that a user can send during a predefined time.

A) access rate
B) committed burst size
C) committed information rate
D) excess burst size

29. In a network, when the load is below the capacity of the network, the throughput _____.

A) increases sharply
B) increases proportionally with the load
C) declines sharply
D) declines proportionally with the load

30. In the _____ method, the signal is included in the packets that carry data.

A) backpressure
B) choke packet
C) implicit signaling
D) explicit signaling

31. In a network, when the load is much less than the capacity of the network, the delay is _____.

A) at a maximum
B) at a minimum
C) constant

D) none of the above

32. Congestion in a network or internetwork occurs because routers and switches have _____.

A) tables
B) queues
C) crosspoints
D) none of the above

33. In _____, we try to create an appropriate environment for the traffic.

A) congestion control
B) quality of service
C) either (a) or (b)
D) both (a) and (b)

34. In Frame Relay, the _____ bit warns the sender of congestion in the network.

A) BECN
B) FECN
C) either (a) or (b)
D) neither (a) nor (b)

35. In Frame Relay, the _____ bit is used to warn the receiver of congestion in the network.

A) BECN
B) FECN
C) either (a) or (b)
D) neither (a) nor (b)

36. The _____ is a function of three values: average data rate, peak data rate, and maximum burst size.

A) peak data rate
B) maximum burst size
C) effective bandwidth
D) none of the above

37. In the _____ algorithm of TCP, the size of the congestion window increases additively until congestion is detected.

A) slow-start
B) congestion avoidance
C) congestion detection
D) none of the above

38. In ATM, the _____ class is divided into two subclasses: real-time (VBR-RT) and non-real-time (VBR-NRT). VBR-RT is designed for those users who need real-time services (such as voice and video transmission) and use compression techniques to create a variable bit rate. VBR-NRT is designed for those users who do not need real-time services but use compression techniques to create a variable bit rate.

A) CBR
B) VBR
C) ABR
D) UBR

39. Traffic _____ are qualitative values that represent a data flow.

A) controls
B) descriptors
C) values
D) none of the above

40. _____ is a class-based QoS model designed for IP.

A) Integrated Services
B) Differentiated Services
C) Connectionless
D) Connection-Oriented

41. In the _____ bucket algorithm, bursty chunks are stored in the bucket and sent out at an average rate.

A) leaky
B) token

C) either (a) or (b)
D) neither (a) nor (b)

42. The _____ bucket algorithm allows idle hosts to accumulate credit for the future in the form of tokens.
A) leaky
B) token
C) either (a) or (b)
D) neither (a) nor (b)

43. In ATM, the _____ class is designed for customers who need real-time audio or video services. The service is similar to that provided by a dedicated line such as a T line.
A) CBR
B) VBR
C) ABR
D) UBR

44. In the _____ traffic model, the data rate changes suddenly in a very short time.
A) constant bit rate
B) variable bit rate
C) bursty
D) none of the above

45. In Frame Relay, a _____ is the maximum number of bits in a predefined time that the network is committed to transfer without discarding any frame or setting the DE bit.
A) access rate
B) committed burst size
C) committed information rate
D) excess burst size