UNIT-2

UNIT II DATA-LINK LAYER & MEDIA ACCESS

Introduction – Link-Layer Addressing – DLC Services – Data-Link Layer Protocols – HDLC – PPP – Media Access Control – Wired LANs: Ethernet – Wireless LANs – Introduction – IEEE 802.11, Bluetooth – Connecting Devices.

1. Which of the following would be found in a Data Link layer header?

a. The packet's fragmentation offset

b. The source's logical address

c .The packet's sequence number

d. The source's physical address

2. What is a primary function of the trailer information added by the data link layer encapsulation?

a. Supports error detection

b. Ensures ordered arrival of data

c. Identifies the devices on the local network

d. Provides delivery to correct destination

3. Error detection at the data link layer is achieved by?

a.Bit stuffing

b.Cyclic redundancy codes

c.Hamming codes

d.Equalization

4. Under mark parity,each parity bit is?

a.Alternated between 0 and 1

b.Always set to 0

c.Always set to 1

d.Not used

5. The data link layer takes the packets from _____ and encapsulates them into frames for transmission.

a.network layer

b.physical layer

c.transport layer

d.application layer

6. Which sublayer of the data link layer performs data link functions that depend upon the type of medium?

a.logical link control sublayer

b.media access control sublayer

c.network interface control sublayer

d.none of the mentioned

7. In _____ protocols, we use _____.

a. byte-oriented; bit stuffing

b. character-oriented; bit stuffing

c. bit-oriented; bit stuffing

d. none of the above

8. Bit stuffing means adding an extra 0 to the data section of the frame when there is a sequence of bits with the same pattern as the _____.

a.header

b.trailer

c.flag

d.none of the above

9. The _____Protocol has flow control, but not error control.

a.Stop-and-Wait

b.Simplest

c.Go-Back-N ARQ

d.Selective-Repeat ARQ

10. The _____Protocol, adds a simple error control mechanism to the _____Protocol.

a.Stop-and-Wait ARQ; Stop-and-Wait

b.Go-Back-N ARQ; Stop-and-Wait

c.Selective Repeat ARQ; Go-Back-N ARQ

d.none of the above

11. In Selective Repeat ARQ, if 5 is the number of bits for the sequence number, then the maximum size of the receive window must be _____.

a.15

b.16

c.31

d.1

12. High-level Data Link Control (HDLC) is a _____ protocol for communication over point-to-point and multipoint links.

a.bit-oriented

b.byte-oriented

c.character-oriented

d.none of the above

13. Data link layer retransmits the damaged frames in most networks. If the probability of a frame's being damaged is p, what is the mean number of transmissions required to send a frame if acknowledgements are never lost ?

a.1/ (1 - F)

b.P I (K + 1)

c.K I (K - P)

d.KIK (1 + F)

14. The MAC (Media Access Control) address of the network card is used in both Ethernet and Token-Ring networks and is essential for communication. What does MAC provide?

a.An alias for the computer name

b.The logical domain address for the workstation

c.A physical address that is assigned by the manufacturer

d.A physical address that is randomly assigned each time the computer is started

15. PPP is a

a.byte-oriented protocol

b.connection-oriented protocol

c.connectionless protocol

d.None

16. The term that is used to define the end of the frame and the beginning of the next frame is called

a.byte stuffing

b.byte unstuffing

c.fixed size framing

d.variable size framing

17. In High-level Data Link Control (HDLC), the frame that is used only to transport control information is called

a. I- frame

b. S-frame

c. V-frame

d. Piggybacking

18. The protocol that is designed for use over dial-up links where verification of user is necessary is

a.Authentication Protocol

b.Network Control Protocol

c.Link Control Protocol

d.High-level Data Link Protocol

19) Circuit switching takes place at the _____ layer.

A) physical

B) data line

C) network

D) transport

20.A packet at the data-link layer is normally called a _____
A)Frames
B)Host
C)Links
D)Nodes
21.The _____layer detects and retransmits damaged or loss frames.
A)Network
B)Session
C)Datalink
D)transport
22.When does the station B send a positive acknowledgement (ACK) to station A in Stop and Wait protocol?
A)only when no error occurs at the transmission level
B)when retransmission of old packet in a novel frame is necessary
C)only when station B receives frame with errors
D) all of the above
23.Each host or each interface of a router is assigned a
A)Unicast address
B)Multicast address

C)Broadcast address
24)Example for broadcast address
A)A2:34:45:11:92:F1
B)A3:34:45:11:92:F1
C)FF:FF:FF:FF:FF:FF
D)None of these
25.In Selective Repeat ARQa NAK is used inform about the
A)Size of window at sender side
B)Size of window at receiver side
C)Sequence number of acknowledged frame
D)Sequence number of damaged frame
26. In ....., there is no need for defining the boundaries of the frames; the size itself can be used a delimiter.

A. Standard Size Framing

B. Fixed Size Framing

C. Variable Size Framing

D. Constant Size Framing
27. In ....., the sender sends one frame, stops until it receives confirmation from the receiver, and then sends the next frame.

A. stop and wait protocol

B. simplest protocol

C. sliding window protocol

D. High level Data Link Control Protocol(HDLC)
28. Which of the following is the correct answer?
A)Go Back N ARQ rejects out-of-order packets
B)In selective Repeat ARQ,out-of-order delivery cannot happen
C)In Go Back N ARQ,number of retransmissions in case of packet drop is 1
D)In Stop and Wait ARQ,lost data problem is resolved by sequence number

29.The data section of a frame is a sequence of bits to be interpreted by the upper layer as text, graphic, audio, video, and so on.
A)Bit Stuffing
B)Bit oriented framing
C)Character oriented framing
D)framing

30. _____ is the process of adding one extra 0 whenever five consecutive 1s follow a 0 in the data, so that the receiver does not mistake the pattern 0111110 for a flag.
A) Byte stuffing
B) Unstuffing
C) Bit Stuffing
D) Stuffing
31. An _____ is thought of as a machine with a finite number of states.The machine is always in one of the states until an *event* occurs.
A) State
B) FSM
C) CSMA
D) Stop and wait
32. **What are the frames issued by the secondary station of HDLC ,known as?**

a. Link
b. Command
c. Response
d. None of the above
33.In sliding window protocol total 8 packets are needed to send if every 4th packet is lost then the number of transmission is needed by the sender
A)10
B)14
C)16
D)20
34.This technique of temporarily delaying the acknowledgement so that it can be hooked with next outgoing data frame is known as
A)piggybacking
B)CRC
C)Error control
D)flow control
35.if more than one station tries to send, there is an access conflict _____and the frames will be either destroyed or modified.
A)Response
B)collision
C)transmission
D)random access
36.Find the correct statement/statements related to Aloha
A)Transmission delay is less in slotted Aloha if no collision is occured
B)Link utilization is more in slotted Aloha
C)Link utilization is more in pure Aloha
D)Transmission delay is less in pure Aloha if no collision is occured

37.The _____ sublayer,as specified in project 802,is LAN specific and deals with contension issues
A)CSMA
B)MAC
C)LLC
C)DLC
38.A 100 base T-Ethernet LAN has a data rate of _____
A)1
B)10
C)100
D)1000
39. The protocol that has no flow or error control is called
a.Simplest Protocol
b.Stop and Wait
c.Go Back-N Automatic Repeat Request
d.Selective Repeat Automatic Repeat Request

40. The piggybacking is used to improve the bidirectional protocol's

a.performance

b.timing

c.efficiency

d.error control

41. Choose the Protocols working in the Data Link Control Layer of OSI model below.

A) ATM (Asynchronous Transfer Mode), Frame Relay

B) HDLC (High-Level Data Link Control), SDLC (Synchronous Data Link Control)

C) ARP (Address Resolution Protocol), IEEE-802.3

D) All the above

42. The contention mode of MAC implementation is best suited for __ traffic.

A) Low

B) Medium

C) High

D) Very High

43. **Which type of S-frame in HDLC exhibit the correspondence of last three bits [N(R)] by defining the negative acknowledgement (NAK) number with the code value of '01'?**

a. Receive ready

b. Receive not ready

c. Reject

d. Selective Reject

44. On an Ethernet network, this is the unit of data that is transmitted between network points. It has explicit minimum and maximum lengths and a set of required pieces of information that must appear within it.

a.data-chunk

b.frame

c.data packet

d.packet

45. This is a device that can be used to connect one Ethernet network to another nearby Ethernet network.

a.gateway

b.switch

c.bridge

d.forwarder

46. Protocols in which stations listen for a carrier and act accordingly are .....

a.ALOHA

b.Multiple access

c.Station Model

d.CSMA

47. Frames from one LAN can be transmitted to another LAN via the device

a.Bridge

b.Router
c.Modem
d.Repeater

48. A device which is used to boost the signal between two cable segments or wireless access points is
a) Booster
b) Repeater
c) Switch
d) Router

49. Which is the smallest unit amongst the following with reference to the ATM-
a) transmission path
b) virtual path
c) virtual circuit
d) all are of the same size

50. A device that helps prevent congestion and data collisions –
a) Switch
b) Hub
c) Gateway
d) Proxy Server
Ans:a