

1. Automatic repeat request (ARQ) error management mechanism is provided by
  - a) **Logical link control sublayer**
  - b) Media access control sublayer
  - c) Network interface control sublayer
  - d) None of the mentioned
2. Which one of the following is the multiple access protocol for channel access control?
  - a) CSMA/CD
  - b) CSMA/CA
  - c) **Both (a) and (b)**
  - d) ARQ
3. Function of data link control includes
  - a) Framing
  - b) flow and error control
  - c) Software implemented protocols
  - d) **All of above**
4. Data link layer in IEEE standard is divided into two sub layers of
  - a) MAC and ACKs
  - b) LAN and MAC
  - c) LLC and NLC
  - d) **LLC and MAC**
5. In byte stuffing, a special byte is added to data section of frame when there is a character with same pattern as the
  - a) **Flag**
  - b) Error
  - c) Sender
  - d) Destination
6. Sequence numbers of Stop-and-Wait Automatic Repeat Request are based on
  - a) Simple arithmetic
  - b) **Modulo-2 arithmetic**
  - c) Logical arithmetic
  - d) modular multiplicative inverse
7. Network can be protected against TCP SYN flooding attack using
  - a) Packet Filter Firewall
  - b) Proxy Firewall
  - c) **State Inspection Firewall**
  - d) None of the above
8. In Go-Back-N ARQ, if 5 is the number of bits for the sequence number, then the maximum size of the receive window must be \_\_\_\_\_.
  - a) **1**
  - b) 15
  - c) 16
  - d) 31
9. For Stop-and-Wait ARQ, for 10 data packets sent, \_\_\_\_\_ acknowledgments are needed.
  - a) Less than 10
  - b) More than 10
  - c) **Exactly 10**
  - d) None of the above
10. Stop-and-Wait ARQ is a special case of Go-Back-N ARQ in which the size of the send window is
  - a) **1**
  - b) 2
  - c) 8
  - d) None of the above

11. Hash function provides message \_\_\_\_\_.  
a) Authentication  
b) Integrity  
c) Confidentiality  
d) All of the mentioned
12. Message Integrity means  
a) No one can read the message other than sender and receiver  
b) Receiver can detect if there is any change in the message during transmission  
c) Receiver can verify authenticity of sender  
d) None of the mentioned
13. Message confidentiality means  
a) No one can read the message other than sender and receiver  
b) Receiver can detect if there is any change in the message during transmission  
c) Receiver can verify authenticity of sender  
d) None of the mentioned
14. Non-repudiation means  
a) Sender cannot deny that the transferred message has been sent by him  
b) Receiver cannot deny that the transferred message has been received by him  
c) Both a) and b)  
d) None of the above
15. A network is fully secure if and only if all the nodes are authenticated.  
a) True  
b) False
16. In passive attacks, attacker can inject and modify the traffics in the network.  
a) True  
b) False
17. Digital signature provides  
a) Message authentication  
b) Message integrity  
c) Both a) and b)  
d) None of the above
18. HTTP packets can be filtered by  
a) Packet filter firewall  
b) Proxy firewall  
c) Both a) and b)  
d) None of the mentioned
19. Packet filter firewall can filter a packet based on  
a) Source-destination IP addresses  
b) Source-destination port addresses  
c) Both a) and b)  
d) None of the mentioned
20. For a n-node network, the complexity (number of keys) of symmetric cryptography is  
a)  $O(n)$   
b)  $O(n^2)$   
c)  $O(\log n)$   
d) None of the mentioned