

2021

ADVANCED COMPUTER NETWORK

Full Marks: 60

Time: 2 hours

A. Multiple Choice Questions

1 x 20=20

1. Which one of the following is not a function of network layer?
 - a. routing
 - b. inter-networking
 - c. congestion control
 - d. error control
2. A _____ is a TCP name for a transport service access point.
 - a. port
 - b. pipe
 - c. node
 - d. protocol
3. Transport layer protocols deals with _____.
 - a. application to application communication
 - b. process to process communication
 - c. node to node communication
 - d. man to man communication
4. The length of an IPv6 address is?
 - a. 32 bits
 - b. 64 bits
 - c. 128 bits
 - d. 256 bits

5. Which of the following is true with regard to the ping command?
 - a. Ping stands for Packet Internet Generator.
 - b. The ping command checks the port level connectivity between source destinations end points.
 - c. Ping summarizes the packet loss and round-trip delay between two IP end points.
 - d. The ping command activates the RARP protocol of the IP layer.

6. is responsible for converting the higher level protocol addresses to physical Network Addresses.
 - a. Address Resolution Protocol (ARP)
 - b. Reverse Address Resolution Protocol (RARP)
 - c. Bootstrap Protocol (BOOTP)
 - d. Internet Control Message Protocol (ICMP)

7. During normal IP packet forwarding by a router, which of the following fields of the IP header is updated?
 - a. Repeater
 - b. Source address
 - c. Destination address
 - d. Checksum

8. Which of the following addresses is 32-bit?
 - a. MAC address
 - b. Virtual address
 - c. Source address
 - d. Destination address

9. P2P is a _____ application architecture.
 - a. Client/server
 - b. Distributed
 - c. Centralized
 - d. 1-tier

10. Which of the following is required to communicate between two computers?
 - a. Communications software
 - b. Protocol
 - c. Communications hardware
 - d. All of the above

11. TCP process may not write and read data at the same speed. So we need _____ for storage.
 - a. Packets
 - b. Buffers
 - c. Segments
 - d. Stacks

12. TCP groups a number of bytes together into a packet called _____.
 - a. Packet
 - b. Buffer
 - c. Segment
 - d. Stack

13. In segment header, sequence number and acknowledgement number fields refer to _____.
 - a. Byte number
 - b. Buffer number
 - c. Segment number
 - d. Acknowledgment

14. The value of acknowledgement field in a segment defines _____.
 - a. sequence number of the byte received previously
 - b. total number of bytes to receive
 - c. sequence number of the next byte to be received
 - d. sequence of zeros and ones

15. Which of the following field in IPv4 datagram is not related to fragmentation?
- a. Flags
 - b. Offset
 - c. TOS
 - d. Identifier
16. If the value in protocol field is 17, the transport layer protocol used is ____.
- a. TCP
 - b. UDP
 - c. ICMP
 - d. IGMP
17. Which field helps to check rearrangement of the fragments?
- a. offset
 - b. flag
 - c. ttl
 - d. identifier
18. The _____ field determines the lifetime of IPv6 datagram.
- a. Hop limit
 - b. TTL
 - c. Next header
 - d. Type of traffic
19. In open-loop control, policies are applied to _____.
- a. Remove after congestion occurs
 - b. Remove after sometime
 - c. Prevent before congestion occurs
 - d. Prevent before sending packets

- 20 The technique in which a congested node stops receiving data from the immediate upstream node or nodes is called as _____.
- Admission policy
 - Backpressure
 - Forward signalling
 - Backward signalling

B. Very Short Question

2*6=12

- What does determine the sender window size in TCP?
- Do port address need to be unique? Justify your answer.
- What is the purpose of including the IPv4 header and the first 8 bytes of datagram data in the error reporting ICMPv4 messages?
- What are the purposes of Flag bits in IPv4 header?
- What do you mean by congestion in computer network?
- What are the function of physical layer in TCP/IP model?

C Short Question

4*7=28

- A router with IPv4 address 125.45.23.12 and Ethernet physical address 23:45:AB:4F:67:CD has received a packet for a host destination with IP address 125.11.78.10. Show the entries in the ARP request packet sent by the router. Assume no sub netting. Also show the entries in the ARP packet sent in response.
- What do you mean by extension header in IPv6? Explain with example.
- An IPv4 datagram is carrying 1024 bytes of data. If there is no option information, what is the value of the header length field? What is the value of the total length field?
- In an IPv4 datagram, the M bit is 0, the value of HLEN is 5, the value of total length is 200, and the offset value is 200. What is the number of the first byte and number of the last byte in this datagram? Is this the last fragment, the first fragment, or a middle fragment?
- Suppose Host A sends two TCP segments back to back to Host B over a TCP connection. The first segment has sequence number 90; the second has sequence number 110. a. How much data is in the first segment? b. Suppose that the first segment is lost but the second segment arrives at B. In the acknowledgment that Host B sends to Host A, what will be the

acknowledgment number?

6. What are the purposes of options field in TCP?
7. Write a short note on congestion control mechanism in TCP?