1. What is the role of the transport layer in the OSI model?

(A) Logical addressing and routing of data packets   (B) Formatting, encryption, and compression of data   (C) Reliable delivery and end-to-end communication of data   (D) Establishing, managing, and terminating sessions or connections

2. Users are generating data at a rate of 100 kbps when busy, but are busy generating data only with probability p = 0.1. Suppose that we have 1 Gbps link What is N, the maximum number of users that can be supported simultaneously under circuit switching?

(A) 10000   (B) 1000   (C) 5000   (D) 100000

3. Which layer of the OSI model does a router operate at?

(A) Data Link layer   (B) Transport layer   (C) Network layer   (D) Application layer

4. .... provides retrieval, deletion, and folders of stored messages on the Email server.

(A) POP   (B) ICANN   (C) IMAP   (D) SMTP

5. What is one of the primary functions of a router?

(A) To manage network traffic   (B) To examine destination IP addresses and make forwarding decisions   (C) To amplify network signals   (D) To connect devices to a network

6. What does the throughput rate represent in a network?

(A) The highest and lowest frequencies in the network   (B)) The rate of incoming data at a specific point in the network   (C) The capacity of the network's servers and workstations   (D) The speed at which information can be sent between devices

7. What are the services provided by the data link layer?

(A) Logical addressing, routing   (B) Segmentation, reassembly, error checking   (C) Framing, error detection and correction, flow control   (D) Session establishment, maintenance, synchronization

8. What does IMAP stand for?

(A) Internet Mail Access Protocol   (B) Internet Mail Authentication Protocol   (C) Internet Message Access Protocol   (D) Internet Message Authentication Protocol

9. The following are fields in RR format in DNS records, except ....

(A) URL   (B) Type   (C) Value   (D) TTL

10. What is the advantage of a tree network topology?

(A) Point-to-point wiring for individual segments   (B) Direct connectivity between devices without relying on a central device   (C) Easy to install and wire   (D) Scalability for future network expansion

11. A packet switch receives a packet and determines the outbound link to which the packet should be forwarded. When the packet arrives, one other packet is halfway done being transmitted on this outbound link and four other packets are waiting to be transmitted. Packets are transmitted in order of arrival. Suppose all packets are 1,500 bytes and the link rate is 2.5 Mbps. What is the queuing delay for the packet?

(A) 19.2 ms   (B) 21.6 ms   (C) 16.8ms   (D) 2.4 ms

12. What is the standard that defines wireless local area networks (WiFi)?

(A) IEEE 802.11   (B) IEEE 802.3   (C) IEEE 802.16   (D) IEEE 802.15

13. What is the purpose of an IP address?

(A) To encrypt data during transmission   (B) To manage network connections   (C) To identify a computer or network device on the Internet   (D) To establish secure tunnels

14. .... attacks intercept DNS queries, returning bogus replies.

    (A) DDoS   (B) ICANN   (C) Spoofing   (D) DoS

15. What type of model does HTTP follow?

    (A) Peer-to-peer model   (B) Client-server model   (C) Broadcast model   (D) Hybrid model

16. Which protocols are commonly used in the network layer?

    (A) Ethernet, Point-to-Point Protocol (PPP), Wi-Fi   (B) Transmission Control Protocol (TCP), User Datagram Protocol (UDP)   (C) HTTP, FTP, SMTP   (D) Internet Protocol (IP)

17. Consider sending over HTTP/2 a Web page that consists of one video clip, and five images. Suppose that the video clip is transported as 2000 frames, and each image has three frames. If all the video frames are sent first without interleaving, how many "frame times" are needed until all five images are sent?   2000 + (3*5) = 2015

    (A) 2000   (B) 2030   (C) 4030   (D) 2015

18. UDP is suitable for applications that prioritize

    (A) Low latency and real-time data transmission   (B) Reliability   (C) Flow control   (D) Ordered data transmission

19. Which layer handles the formatting, encryption, and compression of data in the OSI model?

    (A) Physical layer   (B) Presentation layer   (C) Data link layer   (D) Session layer

20. Which network device is responsible for assigning IP addresses to devices on a network?

    (A) DNS server   (B) DHCP server   (C) File server   (D) Web server