

CCNA Network Fundamentals: Bits, Bytes, Bandwidth, Latency, and Throughput

Computer Networking · Practice Test · 27 Questions

1. What is the smallest unit of information in networking?

- A) Byte
- B) Bit
- C) Kilobit
- D) Megabit

2. Why do electronics use a base-2 binary system instead of base-10 decimal?

- A) It is mathematically simpler for humans.
- B) Binary digits (0 and 1) match physical states (on/off) easily.
- C) Decimal numbers require more complex circuitry.
- D) It allows for faster data processing.

3. What does a '1' typically represent in the flashlight analogy for transmitting bits?

- A) Flashlight is off
- B) Flashlight is on
- C) Signal is low voltage
- D) No current

4. Which unit measures how many bits are sent per second?

- A) Bps
- B) KB
- C) MB
- D) GB

5. How many bits are in a kilobit (Kbps)?

- A) 100
- B) 1,000
- C) 1,000,000
- D) 1,000,000,000

6. What is a byte historically defined as in computing?

- A) The smallest unit of data
- B) The number of bits to store one character
- C) 1000 bits
- D) The capacity of a network link

7. How many bits are in a standard byte?

- A) 2
- B) 4
- C) 8
- D) 16

8. How do bytes scale in computing (e.g., KB to MB)?

- A) Multiples of 1,000
- B) Multiples of 1,024
- C) Multiples of 10
- D) Multiples of 2

9. Which unit is used to measure data size and digital storage?

- A) Mbps
- B) Gbps
- C) MB
- D) bps

10. What is bandwidth defined as?

- A) The actual data rate achieved
- B) The time it takes for a packet to travel
- C) The theoretical maximum data capacity of a link
- D) The variation in latency

11. Bandwidth is measured in which units?

- A) Bytes per second (Bps)
- B) Bits per second (bps)
- C) Kilobytes per second (KBps)
- D) Megabytes per second (MBps)

12. What is throughput?

- A) The theoretical maximum data capacity
- B) The actual data rate observed
- C) The time for data to travel from source to destination
- D) The number of bits in a byte

13. Which factor can reduce throughput compared to bandwidth?

- A) Higher signal voltage
- B) Increased bandwidth
- C) Congestion and errors
- D) Using binary over decimal

14. What does "speed" in networking sometimes refer to?

- A) Only link rate
- B) Only throughput
- C) Link rate, throughput, or both
- D) Only latency

15. What is latency?

- A) The time it takes for a packet to travel from source to destination
- B) The total data capacity of a link
- C) The actual data rate achieved
- D) The variation in packet arrival times

16. Round-trip time (RTT) is the time for data to travel:

- A) From source to destination only
- B) From destination back to source only
- C) To the destination and back to the source
- D) Across the entire network topology

17. In the water pipe analogy, what does the width of the pipe represent?

- A) Throughput
- B) Latency
- C) Bandwidth
- D) Packet loss

18. In the water pipe analogy, what does the actual amount of water flowing represent?

- A) Bandwidth
- B) Latency
- C) Throughput
- D) Jitter

19. What is jitter?

- A) The time it takes for data to travel
- B) The variation in latency
- C) Packets that do not arrive
- D) The theoretical maximum capacity

20. What is packet loss?

- A) The variation in latency
- B) The time delay for data
- C) Packets that do not arrive at their destination
- D) The maximum data capacity

21. When converting bits and bytes, remember that 1 byte equals how many bits?

- A) 10
- B) 8
- C) 2
- D) 1024

22. You should expect throughput to be:

- A) Higher than bandwidth
- B) Equal to bandwidth
- C) Less than bandwidth
- D) Irrelevant to bandwidth

23. Which of the following is an example of a unit for measuring network speed?

- A) MB
- B) GB
- C) Mbps
- D) TB

24. Which of the following is an example of a unit for measuring data size?

- A) Mbps
- B) Gbps
- C) bps
- D) MB

25. What does 'b' stand for when measuring bits per second?

- A) Bytes
- B) Bandwidth
- C) Bits
- D) Binary

26. What does 'B' stand for when measuring bytes?

- A) Bits
- B) Bandwidth
- C) Binary
- D) Bytes

27. A Fast Ethernet interface typically has a capacity of:

- A) 10 Mbps
- B) 100 Mbps
- C) 1 Gbps
- D) 10 Gbps