# CCNA Network Fundamentals: Bits, Bytes, Bandwidth, Latency, and Throughp

Computer Networking · Answer Key · 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