Computer Hardware Basics

Use this key to check answers and read the explanations.

1. Which of these is an example of hardware?
   A. A removable graphics card
   B. A photo-editing application
   C. A downloaded font file
   D. An operating-system update
   Correct answer: A. A removable graphics card
   Hardware is a physical component of the computer. Applications, fonts, and updates are software or data.

2. Which desktop component is the general-purpose processor that executes program instructions?
   A. Case fan
   B. Power supply
   C. CPU
   D. Display cable
   Correct answer: C. CPU
   The central processing unit executes program instructions and coordinates processing tasks.

3. Which component provides the main circuit board with sockets and connectors for the CPU, memory, and expansion cards?
   A. Monitor
   B. Motherboard
   C. Keyboard
   D. Power supply
   Correct answer: B. Motherboard
   The motherboard connects key components and allows them to exchange data.

4. Which component sends the computer input when a person types a letter?
   A. Printer
   B. Monitor
   C. Speaker
   D. Keyboard
   Correct answer: D. Keyboard
   A keyboard converts key presses into signals the computer can use as input.

5. Which desktop component supplies electrical power to the motherboard and other internal parts?

A. Solid-state drive
B. Power supply unit
C. Graphics processor
D. Memory module

Correct answer: B. Power supply unit
The power supply converts incoming electrical power to the levels and forms used by the computer’s components.

6. While editing a large image, which component typically holds the data the CPU is actively using?

A. RAM
B. A disconnected external hard drive
C. The screen
D. The power supply

Correct answer: A. RAM
RAM provides working memory for active programs and data. Permanent copies are usually saved to a drive.

7. Which storage device normally uses flash memory and contains no spinning platters?

A. A floppy disk drive
B. A mechanical hard disk drive
C. A DVD drive
D. A solid-state drive

Correct answer: D. A solid-state drive
A typical SSD uses nonvolatile flash memory. A mechanical hard drive stores data on rotating platters.

8. Which component is specifically designed to perform many graphics calculations in parallel?

A. Keyboard controller
B. Power supply unit
C. GPU
D. Hard disk drive

Correct answer: C. GPU
A graphics processing unit is designed for parallel work such as calculating many parts of an image at once.

9. A desktop is running and its monitor is powered on. Someone pulls out the only cable carrying the desktop’s video signal to the monitor. What is the direct effect?

A. The monitor stops receiving the desktop’s picture
B. Files on the storage drive are erased
C. The desktop loses power to its motherboard
D. The keyboard stops sending input to the desktop

Correct answer: A. The monitor stops receiving the desktop’s picture
The video connection carries the image signal. Unplugging it interrupts that signal without directly changing storage, input, or power.

10. Why is a heat sink fitted against a desktop processor?

A. To increase the capacity of installed RAM
B. To store settings after shutdown
C. To connect the display cable directly to the CPU
D. To move heat away and give it more surface area to dissipate

Correct answer: D. To move heat away and give it more surface area to dissipate
A heat sink conducts heat away from the chip and exposes more surface area so the heat can transfer to the surrounding air.

11. A file was fully saved to an SSD, and another edit exists only in RAM. The machine suddenly loses power. What should remain when it restarts, assuming the hardware is undamaged?

A. Both versions are guaranteed to remain
B. Only the edit held in RAM
C. The version saved to the SSD
D. Neither version can remain without electrical power

Correct answer: C. The version saved to the SSD
Normal working RAM is volatile. A saved file resides on nonvolatile storage and can survive power loss.

12. During a workload the processor often waits while the system moves data between RAM and its drive because memory is full. Which upgrade most directly addresses that problem?

A. A higher-resolution display
B. More compatible RAM
C. An additional cooling fan
D. A keyboard with more keys

Correct answer: B. More compatible RAM
More memory can hold more active data and reduce transfers to and from slower storage. The problem described is limited working-memory capacity.

13. Two memory modules both hold 16 GB, but their connector and electrical standards differ. What is the right way to decide whether either fits a motherboard?

A. Check only whether the monitor is connected
B. Choose either module because the capacities match
C. Check only how much space the SSD has
D. Check the memory type and specifications supported by the board

Correct answer: D. Check the memory type and specifications supported by the board
Capacity alone does not guarantee compatibility. The motherboard and processor must support the memory standard.

14. The same 12 GB file is read from two drives. One sustains 0.30 GB/s and the other 3.0 GB/s. Ignoring overhead, how long do those reads take, respectively?

A. 40 seconds and 4 seconds
B. 4 seconds and 40 seconds
C. 36 seconds and 3.6 seconds
D. 12 seconds and 12 seconds

Correct answer: A. 40 seconds and 4 seconds
Divide file size by each read rate. The two times are 12 ÷ 0.30 = 40 seconds and 12 ÷ 3.0 = 4 seconds.

15. A dedicated graphics card has 4 GB of its own memory. Which upgrade directly increases the amount of memory physically on the graphics card?

A. Add another system SSD
B. Replace the CPU without changing the graphics card
C. Install a compatible graphics card with more onboard graphics memory
D. Install a second keyboard

Correct answer: C. Install a compatible graphics card with more onboard graphics memory
Dedicated graphics memory is built into the graphics card. Replacing the card with one that has more onboard memory increases that capacity.