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| --- |
| **True / False** |

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| 1. A tower case conserves space since it can double as a monitor stand.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | |

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| 2. A DVI port transmits a video signal and is also called a DB-15 port.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | |

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| 3. An Ethernet port has a connector called an RJ-45 to connect to a network cable.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | |

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| 4. Functions that used to be provided by expansion cards are more often found as onboard ports today.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | |

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| 5. Hard drives have three connections for cables: one for reading data, one for writing data, and one for power.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | |

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| **Multiple Choice** |

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| 6. What type of port transmits both digital audio and digital video with a single connector?   |  |  |  | | --- | --- | --- | |  | a. | S-Video | |  | b. | DVI | |  | c. | HDMI | |  | d. | VGA |  |  |  | | --- | --- | | *ANSWER:* | c | |

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| 7. What audio port connects to an external home theater audio system, providing digital audio output?   |  |  |  | | --- | --- | --- | |  | a. | S/PDIF | |  | b. | FireWire | |  | c. | Thunderbolt | |  | d. | eSATA |  |  |  | | --- | --- | | *ANSWER:* | a | |

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| 8. Which statement is NOT true regarding motherboards?   |  |  |  | | --- | --- | --- | |  | a. | also called a system board | |  | b. | has a CPU socket | |  | c. | has a heat sink on the PCIe slots | |  | d. | has slots for DIMMs |  |  |  | | --- | --- | | *ANSWER:* | c | |

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| 9. What component is most likely to be installed in a PC, is considered primary storage, and typically stores the operating system, as well as its applications?   |  |  |  | | --- | --- | --- | |  | a. | floppy drive | |  | b. | tape drive | |  | c. | hard disk drive | |  | d. | optical drive |  |  |  | | --- | --- | | *ANSWER:* | c | |

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| 10. What is the component that usually has a dual-voltage selector switch and has cables that connect to the motherboard and drives called?   |  |  |  | | --- | --- | --- | |  | a. | HDD | |  | b. | PSU | |  | c. | DIMM | |  | d. | PCIe |  |  |  | | --- | --- | | *ANSWER:* | b | |

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| 11. How many pins are in the power supply connector that is typically used on most motherboards today?   |  |  |  | | --- | --- | --- | |  | a. | 20-pin | |  | b. | 8-pin | |  | c. | 24-pin | |  | d. | 15-pin |  |  |  | | --- | --- | | *ANSWER:* | c | |

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| 12. If you have a PCI Express Version 2 video card, how many pins will the power connector have if the card requires extra power?   |  |  |  | | --- | --- | --- | |  | a. | 4 | |  | b. | 2 | |  | c. | 5 | |  | d. | 8 |  |  |  | | --- | --- | | *ANSWER:* | d | |

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| 13. What statement about an FRU is true?   |  |  |  | | --- | --- | --- | |  | a. | they are not necessary for the computer's operation | |  | b. | all types can be easily disposed of in any trash can | |  | c. | it's easily repaired by a support technician | |  | d. | a support technician should know how to replace one |  |  |  | | --- | --- | | *ANSWER:* | d | |

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| 14. What acronym is another name for static electricity, which can damage chips and destroy motherboards?   |  |  |  | | --- | --- | --- | |  | a. | LCD | |  | b. | ESD | |  | c. | EMI | |  | d. | CRT |  |  |  | | --- | --- | | *ANSWER:* | b | |

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| 15. What tool can help discover and report computer errors and conflicts that occur when you first turn on a computer and before the operating system is launched?   |  |  |  | | --- | --- | --- | |  | a. | POST card | |  | b. | ROM module | |  | c. | BIOS memory | |  | d. | CMOS firmware |  |  |  | | --- | --- | | *ANSWER:* | a | |

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| 16. What general-purpose tool can measure characteristics of electricity in a variety of devices?   |  |  |  | | --- | --- | --- | |  | a. | loopback plug | |  | b. | POST card | |  | c. | multimeter | |  | d. | cable tester |  |  |  | | --- | --- | | *ANSWER:* | c | |

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| 17. Programs and data that are stored on a motherboard are referred to by what term?   |  |  |  | | --- | --- | --- | |  | a. | firmware | |  | b. | package | |  | c. | blob | |  | d. | instruction set |  |  |  | | --- | --- | | *ANSWER:* | a | |

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| 18. What is the name for the type of flash memory that is used by mobile devices to store their apps and data?   |  |  |  | | --- | --- | --- | |  | a. | SC card | |  | b. | solid state device | |  | c. | MicroFlash card | |  | d. | hard drive |  |  |  | | --- | --- | | *ANSWER:* | b | |

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| 19. Law enforcement agencies sometimes use what type of data to reconstruct a person's travels?   |  |  |  | | --- | --- | --- | |  | a. | accelerometer | |  | b. | tethering | |  | c. | geotracking | |  | d. | geospotting |  |  |  | | --- | --- | | *ANSWER:* | c | |

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| 20. What is the most common pointing device on laptops?   |  |  |  | | --- | --- | --- | |  | a. | a touch pad | |  | b. | a mouse | |  | c. | a touch screen | |  | d. | a trackball |  |  |  | | --- | --- | | *ANSWER:* | a | |

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| 21. In a cellular network, each cell is controlled by a tower. What are these towers called?   |  |  |  | | --- | --- | --- | |  | a. | cell controllers | |  | b. | cell hubs | |  | c. | base controllers | |  | d. | base stations |  |  |  | | --- | --- | | *ANSWER:* | d | |

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| 22. A micro-ATX motherboard will fit into a case that follows what minimum standard?   |  |  |  | | --- | --- | --- | |  | a. | ATX 1.0 | |  | b. | ATX 1.5 | |  | c. | ATX 2.0 | |  | d. | ATX 2.1 |  |  |  | | --- | --- | | *ANSWER:* | d | |

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| 23. How many pins are used in a parallel port, also known as an LPT port?   |  |  |  | | --- | --- | --- | |  | a. | 9 | |  | b. | 15 | |  | c. | 25 | |  | d. | 40 |  |  |  | | --- | --- | | *ANSWER:* | c | |

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| 24. What type of port is sometimes used by routers for management and configuration purposes?   |  |  |  | | --- | --- | --- | |  | a. | DB9 port | |  | b. | LPT port | |  | c. | PS/2 port | |  | d. | eSATA port |  |  |  | | --- | --- | | *ANSWER:* | a | |

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| 25. What connector has 4 pins, is used for older IDE drives and some SATA drives, and can provide +5 V and +12 V power outputs?   |  |  |  | | --- | --- | --- | |  | a. | SATA connector | |  | b. | Berg connector | |  | c. | Molex connector | |  | d. | PCIe connector |  |  |  | | --- | --- | | *ANSWER:* | c | |

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| **Multiple Response** |

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| 26. The two services that Windows must provide for an ExpressCard are:   |  |  |  | | --- | --- | --- | |  | a. | daemon service | |  | b. | socket service | |  | c. | card service | |  | d. | hardware service |  |  |  | | --- | --- | | *ANSWER:* | b, c | |

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| 27. What two different types of firmware may be used on motherboards?   |  |  |  | | --- | --- | --- | |  | a. | BIOS | |  | b. | CEFI | |  | c. | UEFI | |  | d. | CMOS |  |  |  | | --- | --- | | *ANSWER:* | a, c | |

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| 28. What are the two most common form factors used today for computer cases, power supplies, and motherboards?   |  |  |  | | --- | --- | --- | |  | a. | AT | |  | b. | ATX | |  | c. | ATC | |  | d. | mATX |  |  |  | | --- | --- | | *ANSWER:* | b, d | |

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| 29. The PCIe connectors on an ATX Version 2.2 power supply come in what two different configurations, depending on the version of PCI express involved?   |  |  |  | | --- | --- | --- | |  | a. | 4-pin | |  | b. | 6-pin | |  | c. | 8-pin | |  | d. | 10-pin |  |  |  | | --- | --- | | *ANSWER:* | b, c | |

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| 30. What are two different ways by which a laptop could utilize the cellular network connection of a mobile device?   |  |  |  | | --- | --- | --- | |  | a. | proxy | |  | b. | store and forward | |  | c. | tethering | |  | d. | hotspot |  |  |  | | --- | --- | | *ANSWER:* | c, d | |

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| **Matching** |

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| Match each item with a statement below.   |  |  | | --- | --- | | a. | DisplayPort | | b. | DIMM | | c. | heat sink | | d. | PCIe | | e. | POST | | f. | SO-DIMM | | g. | airplane mode | | h. | Bluetooth | | i. | central processing unit (CPU) | | j. | micro-ATX | |

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| 31. transmits digital video and audio and is slowly replacing VGA and DVI   |  |  | | --- | --- | | *ANSWER:* | a | |

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| 32. a type of memory slot found on a motherboard   |  |  | | --- | --- | | *ANSWER:* | b | |

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| 33. draws heat from the CPU and pipes it to a fan, which then blows heat out of the case   |  |  | | --- | --- | | *ANSWER:* | c | |

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| 34. a slot used for expansion cards or video cards on a motherboard   |  |  | | --- | --- | | *ANSWER:* | d | |

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| 35. a series of tests performed by the startup UEFI/BIOS when you first turn on a computer   |  |  | | --- | --- | | *ANSWER:* | e | |

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| 36. a smaller type of memory slot typically used for laptops   |  |  | | --- | --- | | *ANSWER:* | f | |

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| 37. a computer is said to be in this mode when all wireless technologies are turned off   |  |  | | --- | --- | | *ANSWER:* | g | |

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| 38. a short-range wireless technology used to connect two devices in a small personal network   |  |  | | --- | --- | | *ANSWER:* | h | |

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| 39. also called the processor, or microprocessor, does most of the processing of data and instructions for the entire system   |  |  | | --- | --- | | *ANSWER:* | i | |

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| 40. reduces the total cost of a system by reducing the number of expansion slots on the motherboard, reducing the power supplied to the board, and allowing for a smaller case size   |  |  | | --- | --- | | *ANSWER:* | j | |

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| **Subjective Short Answer** |

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| 41. Describe the differences between a tower case and a desktop case.   |  |  | | --- | --- | | *ANSWER:* | A tower case sits upright and can be as high as two feet and has room for several drives. Often used for servers, this type of case is also good for PC users who anticipate upgrading, because tower cases provide maximum space for working inside a computer and moving components around. A desktop case lies flat and sometimes serves double-duty as a monitor stand. | |

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| 42. What is the difference between a DVI port and an HDMI port?   |  |  | | --- | --- | | *ANSWER:* | Both ports are used to transmit video but a DVI port can transmit digital or analog video while the HDMI can only transmit digital video. However, the HDMI port can also transmit digital audio at the same time as digital video. | |

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| 43. List three components found on a motherboard.   |  |  | | --- | --- | | *ANSWER:* | CPU expansion slots memory slots heat sink | |

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| 44. List three reasons you should use matching form factors for the motherboard, power supply, and case.   |  |  | | --- | --- | | *ANSWER:* | Using matching form factors assures you that: The motherboard fits in the case. The power supply cords to the motherboard provide the correct voltage, and the connectors match the connections on the board. The holes in the motherboard align with the holes in the case for anchoring the board to the case. The holes in the case align with ports coming off the motherboard. For some form factors, wires for switches and lights on the front of the case match up with connections on the motherboard. The holes in the power supply align with holes in the case for anchoring the power supply to the case. | |

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| 45. What is the difference between a tablet and a phablet?   |  |  | | --- | --- | | *ANSWER:* | A tablet is a computing device with a touch screen that is larger than a smart phone and has similar functions. Tablets can typically connect to Wi-Fi networks and use Bluetooth or NFC. Some tablets have the ability to use a cellular network for data transmissions and phone calls. When you can use your tablet to make a phone call, the distinction between a smart phone and a tablet is almost nonexistent, except for size. A phablet bridges this size exception. A phablet has the same capabilities of a smart phone or tablet and is smaller than a tablet and larger than a smart phone. | |

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| 46. List some types of wearable technology devices, and describe how they can be used.   |  |  | | --- | --- | | *ANSWER:* | Wearable technology devices, including smart watches wristbands, arm bands, eyeglasses, headsets, and clothing, can be used as computing devices to make phone calls, send text messages, transmit data, and check email; wearable technology fitness monitors can measure heart rate, count pool laps or miles jogged or biked, and a host of other activities. These devices can sync up with a computer for power and communication, similar to how other mobile devices work. Many people believe smart watches will eventually replace smart phones as the personal communication device of choice. | |

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| 47. Describe the Near Field Communication (NFC) technology.   |  |  | | --- | --- | | *ANSWER:* | Near Field Communication (NFC) is a wireless technology that establishes a communication link between two NFC devices that are within 4 inches of each other. For example, when you tap your smart phone with that of your friend, the two phones can use NFC to exchange contact information. NFC can also be used to read an NFC tag, which is a small microchip that can be embedded in just about anything, including a key chain tag, printed flyer, or billboard. The NFC tag dispenses information to any NFC-enabled smart phone or other device that comes within 4 inches of the tag. | |

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| 48. What is an Accelerometer?   |  |  | | --- | --- | | *ANSWER:* | A gyroscope is a device that contains a disc that is free to move and can respond to gravity as the device is moved. Three axes in the device sense how the disc moves and, therefore, can tell the direction of motion. An accelerometer is a type of gyroscope used in mobile devices to sense the physical position of the device. The accelerometer is used by the OS and apps to adjust the screen orientation from portrait to landscape as the user rotates the device. Apps such as a Compass, Carpenter's Leveler, and some game apps use the accelerometer to sense how the user is moving the device. | |

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| 49. Describe the differences between BIOS and UEFI firmware.   |  |  | | --- | --- | | *ANSWER:* | The older BIOS (basic input/output system) that contains system BIOS to manage essential devices (such as the keyboard, mouse, hard drive, and monitor) before the OS is launched, startup BIOS to start the computer, and BIOS setup to change the motherboard configuration or settings. Newer motherboards use Unified Extensible Firmware Interface (UEFI) firmware that is more robust and secure than BIOS. Just as with BIOS, UEFI is responsible for managing essential devices before the OS is launched, starting the computer, and managing motherboard settings. UEFI can also assure that the boot is secure and no rogue operating system hijacks the system. | |

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| 50. What is the POST (power-on self test), and what can be done to troubleshoot this process?   |  |  | | --- | --- | | *ANSWER:* | The POST is a series of tests performed by the startup UEFI/BIOS when you first turn on a computer. These tests determine if startup UEFI/BIOS can communicate correctly with essential hardware components required for a successful boot. If you have a problem that prevents the computer from booting that you suspect is related to hardware, you can install a POST card in an expansion slot on the motherboard. For laptops, some cards install in a USB port. Then attempt to boot. The card monitors the boot process and reports errors, usually as coded numbers on a small LED panel on the card. You then look up the number online or in the documentation that accompanies the card to get more information about the error and its source. | |