**Advanced Hardware Simulations Solutions**

**Module 1**

**Simulation 1-3**

1. Which of these ports transmits digital video? (Select two.)
   * DVI
   * DisplayPort
2. Which of the following are true about DVI and HDMI technology? (Select two.)
   * DVI can transmit video in either digital or analog.
   * HDMI can transmit audio data.
3. If a computer system does not have a graphics card installed in a motherboard’s PCIe slot, which component handles video calculations?
   * The CPU or a chip on the motherboard
4. What feature do you need on a computer if you want to take it with you on vacation to another continent?
   * Dual-voltage selector switch
5. Which of the following is a difference between memory and storage?
   * Memory is temporary; storage is permanent.

**Simulation 1-4**

1. What kind of memory card does a laptop typically use?
   * SO-DIMM
2. In this computer, the optical drive and the hard disk drive provide options for long-term data storage. What’s another component often included in computers for long-term storage?
   * Solid state drive
3. This laptop’s wireless card plugs into a mini-PCIe slot on the system board. In a desktop computer, what kind of motherboard slot would a wireless card typically plug into?
   * PCIe
4. Some parts inside an all-in-one computer look very similar to laptop parts, while other parts are the same as those used inside a desktop computer. Of the parts listed here, which one are you most likely to find in any of the three types of computers (laptop, desktop, and all-in-one) without any variation in size, shape, or functionality?
   * Internal SSD
5. Coin-cell batteries are often used to power small devices such as watches and small toys. It’s obviously not capable of powering the entire all-in-one computer. So what is it used for here?
   * Powers a small amount of RAM so the computer will retain motherboard settings, such as the time and date.

**Simulation 1-5**

1. What other tool might you have been able to use to identify matching ends for each Ethernet cable?
   * Network cable tester
2. What other tool might you have been able to use to test power going to the DVD drive?
   * Multimeter
3. What suggestions might you give Caitlyn to help prevent this problem in the future? (Choose two.)
   * Move the computer off the carpeted floor.
   * Keep the cat away from the computer.
4. Why do you have to use a different POST card for desktops and laptops?
   * Their expansion slots are different sizes.
5. What kind of electrical current comes out of a wall outlet?
   * Alternating current

**Simulation 1-6**

1. Besides an ESD strap, what tools help you reduce static electricity and protect equipment? (Choose all that apply.)
   * Ground mat
   * Antistatic bag
2. When looking at a SATA data connector next to a SATA power connector, which one is larger?
   * SATA power connector
3. Why does the graphics card generally go in the top PCIe x16 slot?
   * The graphics card should be close to the CPU for faster communication.
4. Two hard disk drives and one solid state drive is a lot of storage space for one computer. Why might a user want this much storage space?
   * Back up data
5. What items on the front of the case do the front panel headers typically support? (Choose all that apply.)
   * Power button
   * LED lights
   * Speakers

**Simulation 1-7**

1. What class of fire extinguisher is rated to put out electrical fires?
   * Class C
2. Besides an ESD strap, what other devices can help you protect components from ESD? (Choose two.)
   * Ground mat
   * Antistatic bag
3. It’s important to remember the order in which you removed parts from a system. Thinking back to the steps you just performed, in what order did you remove these parts?
   * Expansion cards, motherboard, drives/power supply
4. In this project, what two connection types did you use to connect the external hard drive to these computers? (Choose two.)
   * USB
   * eSATA
5. Thinking about the computer you’re currently working on, which expansion cards did you remove from this system? (Choose all that apply.)
   * SATA controller card
   * Wireless network adapter
   * PCIe video card

**Simulation 1-8**

1. Why is an SSD more stable than an HDD?
   * An HDD’s disks are easily damaged.
2. What other Intel processor uses socket LGA 1151?
   * Skylake
3. Why might a motherboard be installed on top of spacers?
   * To prevent the motherboard from touching the case.
4. Of these motherboard form factors, which is the most common?
   * ATX
5. Suppose you buy a computer, get it home, and set it up. As you turn on the computer and start trying to connect it to your Wi-Fi network, you realize the computer doesn’t have a wireless network card installed. Rather than opening up the system and installing a card, which of these devices could you use instead?
   * USB wireless network adapter

**Simulation 1-9**

1. Which of these components does not connect directly to the power supply? (Choose two.)
   * Case fans
   * CPU fan
2. What kind of data cable is most often used to connect components inside modern desktop computers?
   * SATA
3. Which power cable usually connects the power supply to the motherboard in order to provide power to multiple components that are also connected to the motherboard?
   * 20+4 pin P1
4. Besides the power button, what other button on the case might the front panel wires connect to?
   * Reset
5. Why do the USB 3.0 ports need a power cable?
   * USB 3.0 transfers both data and power.

**Simulation 1-10**

1. Manufacturers of laptops, mobile devices, and all-in-one computers typically take great liberty in creating their own unique cases, buses, cables, connectors, drives, circuit boards, fans, and even screws, all of which are likely to be proprietary in design. Which factors do you especially need to consider before working on one of these devices?
   * Check for manufacturer’s warranty, research special instructions in manual, use diagnostic tools from manufacturer
2. Which of the following questions should you ask the customer to avoid creating more problems as you attempt to repair the customer’s laptop? (Select three.)
   * Is the laptop under warranty?
   * Is the data backed up?
   * Specifically what symptoms have you noticed?
3. What is another component that might be considered a CRU for a different laptop?
   * Battery pack
4. What kind of memory module do most laptops use?
   * SO-DIMM
5. When disassembling and then reassembling a laptop, which part might be designed for a single use only and so need to be replaced when putting the laptop back together?
   * The screws