

Solutions for Chapter 1: Taking a Computer Apart and Putting It Back Together

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[EOC A HD] Thinking Critically

1. You purchase a new desktop computer that does not have wireless capability, and then you decide that you want to use a wireless connection to the Internet. What are the two least expensive ways (*choose two*) to upgrade your system to wireless?
 - a. Trade in the computer for another computer that has wireless installed.
 - b. Purchase a second computer that has wireless capability.
 - c. Purchase a wireless expansion card and install it in your system.
 - d. Purchase a USB wireless adapter and connect it to the computer by way of a USB port.

Answers:

- c. Purchase a wireless expansion card and install it in your system.**
 - d. Purchase a USB wireless adapter and connect it to the computer by way of a USB port.**
2. What type of computer is likely to use SO-DIMMs, have an internal power supply, and use a desktop processor socket?

Answer: An all-in-one computer.

3. When troubleshooting a computer hardware problem, which tool might help with each of the following problems?
- a. You suspect the network port on a computer is not functioning.
 - b. The system fails at the beginning of the boot and nothing appears on the screen.
 - c. A hard drive is not working and you suspect the Molex power connector from the power supply might be the source of the problem.

Answers:

a. Loopback plug

b. POST diagnostic card

c. Multimeter

4. You disassemble and reassemble a desktop computer. When you first turn it on, you see no lights and hear no sounds. Nothing appears on the monitor screen. What is the most likely cause of the problem? Explain your answer.
- a. A memory module is not seated properly in a memory slot.
 - b. You forgot to plug in the monitor's external power cord.
 - c. A wire in the case is obstructing a fan.
 - d. Power cords to the motherboard are not connected.

Answer: d. Power cords to the motherboard are not connected. All the other answers would still cause the system to start the boot, even though it might fail. If the motherboard is not getting power, it will not start the boot.

5. You are looking to buy a laptop on a budget that requires you to service and repair the laptop yourself, and you want to save money by not purchasing an extended service agreement beyond the first year. To limit your search, what should you consider when choosing manufacturers? Which manufacturers would you choose and why?

Answer: You want to be able to maintain and repair the laptop on your own after the warranty expires. You will need access to documentation and new parts. Consider that two manufacturers, Lenovo and Dell, provide their service manuals online free of charge. They also provide documentation about how their laptops are disassembled and options to purchase proprietary parts without first being an authorized service center.

6. A four-year-old laptop will not boot and presents error messages on screen. You have verified with the laptop technical support that these error messages indicate the motherboard has failed and needs replacing. What is the order of steps you should take to prepare for the repair?
- Ask yourself if replacing the motherboard will cost more than purchasing a new laptop.
 - Find a replacement motherboard.
 - Find the service manual to show you how to replace the motherboard.
 - Ask yourself if the laptop is still under warranty.

Answers: The correct order of steps to take is d., a., c., and b.

7. Why are laptops usually more expensive than desktop computers with comparable power and features?

Answer: Laptops use compact hard drives that can withstand movement even during operation, and small memory modules and CPUs that require less voltage than regular components. In general, it costs more to make similar components that take up less space and require less power.

8. When a laptop internal device fails, what three options can you use to deal with the problem?

Answers:

Return the laptop to a service center for repair.

Substitute an external component for the internal component.

Replace the internal component.

9. A friend was just promoted to a new job that requires part-time travel, and he has also been promised a new laptop after his first month with the company. He needs an easy way to disconnect and reconnect all his peripheral devices to his old laptop. Devices include two external monitors (one HDMI, one DVI), a USB wireless mouse, USB wireless keyboard, Ethernet network, USB printer, headphones, and microphone. He has a budget of \$100. What kind of device would best suit his needs? Why? Research online to find a recommendation for a device that will work best for him. What is your recommendation and why?

Answer: A port replicator is most likely to best suit his needs because most docking stations are outside his budget, and a port replicator will not require him to purchase a second device once his laptop is upgraded. The recommended port replicator needs to include, at minimum, ports for: 1 × HDMI, 1 × DVI, 3 × USB, 1 × RJ-45, and 2 × audio

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(audio output and mic).

10. Your laptop LCD panel is blank when you boot up. You can hear the laptop turn on, and the keyboard backlight is on. You have checked the brightness using the function keys, and that is not the problem. What is an easy next step to determine if the LCD panel has failed? Describe how that next step can also help if the LCD panel has failed, but the replacement components won't arrive for a week and you still need to use your laptop.

Answer: Connect an external monitor to a video port on the laptop. If the screen works, you can use this temporary solution until replacement components arrive.

11. A foreign exchange student brought his desktop computer from his home in Europe to the United States. He brought a power adapter so that the power cord would plug into the power outlet. He tried turning on his computer, but it wouldn't power on. What is likely the problem? What should you warn him about when he returns home at the end of the year?

Answer: The voltage switch needs to be moved from 220 V, which is used in Europe, to 115 V, which is used in the United States. Warn him that when he takes his computer back home, he should move the switch before plugging in his computer. Otherwise, his computer will likely be "fried" because it will be receiving more voltage than the setting allows.

12. You're building a new desktop computer from parts you picked out and purchased. You invested a good deal of money in this computer and want to be sure to protect your investment while you assemble it. What precautions should you take to protect

your computer from damage and electrostatic discharge?

Answer: Remove loose jewelry, wear an ESD strap, don't touch sensitive parts on components, handle them by the edges, and use appropriate tools.

13. Your friend asks for your help because her laptop screen is too dim to read anything. What is the first step you should take to fix the problem?

Answer: Use the function keys to make sure the screen brightness is set high enough.

14. Your boss asks you to give a presentation and you need to use a projector to show a slideshow. What are the steps to display the slideshow on both your laptop and the projector simultaneously?

Answer: Connect the projector using one of the video ports on your laptop. Use the function keys to toggle to the dual screen function for presentation.

15. After troubleshooting a problem, you decide that the wireless card has failed in a laptop. What do you do first before you disassemble the laptop?

Answer: Research teardown instructions specific to this laptop. Resources might include the user manual, manufacturer's website, or online videos.

[EOC A HD] Hands-On Projects

Answers will vary.

[EOC A HD] Real Problems, Real Solutions

Answers will vary.