Chapter 6 Answers

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| **Num** | **Multiple Choice Answers (Book)** | **Matching Answers (Book)** |
| 1 | D | I |
| 2 | B | D |
| 3 | C | H |
| 4 | D | F |
| 5 | A | J |
| 6 | C | B |
| 7 | B | C |
| 8 | A | A |
| 9 | B | E |
| 10 | A | G |

**Open Ended Questions:**

1. **Define input and input devices.**  
   Input is any data or instructions that are used by a computer. They can come directly from you or from other sources.

Input devices are hardware used to translate words, sounds, images, and actions that people understand into a form that the system unit can process

1. **Describe the different types of keyboard, pointing, scanning, image capturing, and audio-input devices.**

Variety of keyboard designs:

* + **Traditional keyboards**—full-sized, rigid, rectangular keyboards that include function, navigational, and numeric keys.
  + **Laptop keyboards** – widely used on laptop computers. They typically have fewer keys, do not include a numeric keypad, and do not have a standard location for the function and navigation keys.
  + **Virtual keyboards –** displays an image of a keyboard on a touch screen which functions as the actual input device. Virtual keyboards are common on tablet computers and mobile devices.
  + **Thumb keyboards** – widely used on smartphones and other small portable devices.

Variety of different pointing devices:

* Mouse – a mouse controls a pointer that is displayed on the monitor (optical mouse, a cordless or wireless mouse). Similar to a mouse are trackballs, touch pads, and pointing sticks.
* Touch screen allows users to select actions or commands by touching the screen with a finger or penlike device. Multitouch screens can be touched with more than one finger, which allows for interactions such as rotating graphical objects on the screen with your hand or zooming in and out by pinching and stretching your fingers.
* Stylus - penlike device commonly used with tablets PCs. Uses pressure to draw images on a screen.

There are five types of scanning devices:

* Optical scanners – also known simply as a scanner, accept documents consisting of text and/or images and convert them to machine-readable form. These devices do not recognize individual letters or images. Rather, they recognize light, dark, and colored areas that make up individual letters or images. Three basic types of optical scanners include: flatbed, document, and portable.
* Card readers – interpret encoded information on some type of identification card. Additionally, encoded information is often stored on the card as well. Two types include: magnetic (reads magnetic strip) and radio frequency (reads RFID microchip) card readers.
* Bar code readers– are used with electronic cash registers in supermarkets. Wand readers or platform scanners read UPC codes that are used to determine product descriptions and prices and to update inventory levels.
* RFID readers – radio-frequency identification tags are tiny chips that can be embedded in most everything. They contain electronically stored information. They are used to track and locate lost pets; to monitor production and update inventory; and to record prices, product descriptions, and locations of retail items.
* Character and mark recognition devices – recognize special characters and marks. Three basic types include: MICR (magnetic ink character recognition, read by readers/sorters), OCR (optical character recognition), and OMR (optical mark recognition)
* Image capturing devices – create or capture original images. These devices include digital cameras (images downloaded to system unit for further processing and/or printing) and digital video cameras. Webcams capture and send images over the Internet; one design is built-in and the other is attached.
* Audio-input devices – convert sounds into a form that can be processed by the system unit. By far the most used audio-input device is the microphone. Audio input takes many forms, including the human voice and music. Voice recognition systems use a combination of microphone, a sound card, and special software..

1. **Define output and output devices.**Output is processed data or information. Output typically takes the form of text, graphics, photos, audio, and/or video.

* Output devices are hardware used to provide or to create output. They translate information that has been processed by the system unit into a form that people can understand. There are a wide range of output devices. The most widely used monitors, printers, and audio-output devices.

1. **Describe the features and different types of monitors and printers.**

Monitors are also known as display screens. They present visual images of text and graphics. The output is often referred to as soft copy. Monitors vary in size, shape, and cost. The most important characteristic is clarity which is a function of the following features:

* **Resolution –** one of the most important features of a monitor. Images for formed on a monitor by a series of dots or pixels. Resolution is expressed as a matrix of those dots or pixels.
* **Dot (pixel) pitch –** is the distance between each pixel. Most new monitors have a dot pitch of .31 mm or less. The lower the dot pitch (the shorter the distance between pixels), the clearer the images produced.
* **Contrast ratios –** indicate a monitor’s ability to display colors. It compares the light intensity of the brightest white to the darkest black. The higher the ratio, the better the monitor.
* **Active display area (size)** – is measured by the diagonal length of a monitor’s viewing area. Common sizes are 15, 17, 19, 21, and 24 inches. **Aspect ratio** – is determined by the width of a monitor divided by its height. Common aspect ratios for monitors are 4:3 (standard, similar to traditional television pictures) and 16:10 (wide screen)
* Different types of monitors include:
* **Flat-panel monitors** – are the most widely used type of monitor today. They are thin, more portable, and require less power to operate.
  + Most of today's flat-panel monitors are **LCD** (**liquid crystal display**). One characteristic of LCD technology is that the monitors are back-lit meaning that a common source of light is dispersed over all the pixels on the screen. LED, light-emitting diode, advanced technology, slimmer, better picture quality and environmentally friendly.
* **E-book Readers** – are dedicated mobile devices for storing and displaying e-books and other electronic media including electronic newspapers and magazines.
* **Other** **Monitors** – these monitors are used for more specialized applications, such as reading books, making presentations, and watching television. Two of these specialized devices are digital whiteboards, and high-definition television (HDTV).
* Printers: translate information that has been processed by the system unit and present the information on paper. Printer output is often called hard copy.

**Features** – Basic distinguishing features include:

* + **Resolution -** the clarity of images produced and measured in dpi (dots per inch). The higher the dpi, the better the quality of images produced.
  + **Color capability –** provided by most printers today. Users typically have the option to print either with just black ink or with color.
  + **Speed** - measured in the number of pages printed per minute.
  + **Memory** – printer memory is used to store printing instructions and documents waiting to be printed. The more memory in a printer, the faster it will be able to create large documents.
  + **Duplex printing** – Allows automatic printing on both sides of a sheet of paper.
  + **Ink-jet printers** 
    - Spray ink at high speed onto the surface of paper.
    - The most widely used printers.
    - Available in Black only or Color.
    - Reliable, quiet, and relatively inexpensive.
    - Most costly aspect is replacing ink cartridges.
  + **Laser printers**
    - Use a laser light beam to produce images with excellent letter and graphics quality.
    - Available in Black only or Color.
    - Reliable, quiet, but more expensive than ink-jets.
    - Faster than ink-jets and are used in applications requiring high-quality output.
    - Two categories
      * Personal – used by single users
      * Shared – used by a group of users, typically support color, and are more expensive
  + **Other Printers** 
    - **Cloud printers** are printers connected to the Internet that provide printing services to others on the Internet.
    - **Thermal printers** use heat elements to produce images on heat-sensitive paper.
    - **Plotters** are special-purpose printers for producing maps, images, and architectural and engineering drawings.

1. **Describe audio and video devices including portable media devices and Mobile DTV.**.

**Audio-Output Devices [I left this as this was marked to being confirmed. Is ti will be Bluetooth?]** - translate audio information from the computer into sounds that people can understand.

* + The most widely used audio-output devices are speakers and headphones.
  + Audio-output devices are used to play music, vocalize translations from one language to another, and communicate information from the computer system to users.
  + Mobile Digital Television (Mobile DTV) – technology that supports television broadcasting directly to smartphones, computers, and digital media players.

1. **Discuss combination input and output devices** **including multifunctional devices, Internet telephones, robots, and virtual reality headgear and gloves.** Combination input and output devices are hardware that combines input and output capabilities. Some of these include multifunctional devices, Internet telephones, and robots.

* **Multifunctional devices (MFD),** - typically combine the capabilities of a scanner, printer, fax, and copy machine into one unit
* **Internet telephones** are specialized input and output devices for receiving and sending voice communication. Voice over IP (VoIP) is the transmission of telephone calls over computer networks.

1. **Define ergonomics and describe ways to minimize physical discomfort.**

Ergonomics is the study of human factors related to things people use. It is concerned with fitting the task to the user rather than forcing the user to contort to do the task. For computer users and manufactures this means devising ways that input and output devices can be used and designed to increase ease of use and to avoid health risks. Sitting in front of a screen in awkward positions for long periods may lead to physical problems such as eyestrain, headaches, and back pain. Computer users can alleviate these problems by taking frequent rest breaks and by using well-designed computer furniture.

* Eyestrain and headache – Take a 15-minute break every hour or two. Keep everything you’re focusing on at about the same distance.
* Back and neck pain – Adjust your chair for height and angle, and the chair should have good back support. The monitor should be at eye-level or slightly below eye level. Use a footrest to reduce leg fatigue.
* Repetitive strain injury – (RSI) is an injury that is caused by fast, repetitive work that can generate neck, wrist, hand and arm strain. Use ergonomic keyboards and take frequent short rest breaks and gently massage your hands.