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Work-place Software and Skills

OpenStax *Workplace Software and Skills* Instructor Answer Guide

Chapter 1: Technology in Everyday Life and Business

Review Questions

1. What nineteenth-century invention laid the foundation for future developments in computing?
   a. Jacquard's loom
      [Correct. Jacquard developed a machine that used a punch card system to automatically weave designs in fabric.]
   b. Apple's Macintosh computer
      [Apple's Macintosh computer was launched in January 1984.]
   c. Programma 101
      [The Programma 101, a programmable calculator, was developed in 1964.]
   d. TRS-80
      [TRS-80 was launched by Tandy in the late 1970s.]

[Answer: A]

2. What is the main operating system for iPhone mobile devices?
   a. Android
      [The Android operating system is used to operate Google programs.]
   b. Google
      [Google is not an operating system.]
   c. iOS
      [Correct. iOS is Apple's operating system, used to run iPhones.]
   d. SMS
      [SMS stands for short message service.]

[Answer: C]

3. What are direct deposit, high-speed printers/copiers, and automated inventory systems all examples of?
   a. outdated technology
      [These advances in technology are used today.]
   b. future developments in technology
      [These are technological advances currently in use.]
   c. early-stage developments in technology
      [These are examples of technology in use today.]
   d. advances in technology
      [Correct. These are all examples of advances in technology.]

[Answer: D]

4. What is VR?
   a. a mostly live, real environment with some digital elements embedded
      [VR is mostly simulated, not mostly live.]
   b. a computerized game for trying out a new product
      [VR may be used in a computerized game, but this is not the definition of VR.]
   c. a robot that can perform mundane tasks
      [A robot is not virtual reality.]

d. a mostly simulated environment that allows the user to interact in the space
[Correct. VR is a mostly simulated environment that allows user interaction.]

[Answer: D]

5. The autopilot features on an airplane are an example of _____.
   a. VR
   [VR is a mostly simulated environment that allows the user to interact in the space.]
   b. AI
   [Correct. The use of autopilot is an example of advances in artificial intelligence.]
   c. AR
   [AR is a mostly live environment with some virtual elements.]
   d. machine learning
   [Machine learning is the use of software applications to make computations and decisions.]

[Answer: B]

6. _____ is referred to as "the brains of the computer system."
   a. Printer
   [A printer is an additional piece of hardware outside of the computer itself.]
   b. Mainframe
   [A mainframe is part of a network of computers, used to process a great deal of data.]
   c. Microprocessor
   [Correct. The microprocessor is contained in the CPU and performs math and logical operations within a computer system.]
   d. Router
   [A router is used to connect to the internet.]

[Answer: C]

7. _____ allows the computer to operate and process information quickly.
   a. ROM
   [ROM is memory that is not intended to be stored but to process information as it is being used.]
   b. RAM
   [Correct. RAM is the primary, short-term memory that is used to process information quickly.]
   c. HTTP
   [HTTP is the protocol that allows communication through the internet.]
   d. WAN
   [Wide area networks (WANs) allow access to regional service providers.]

[Answer: B]

8. What is a network adapter card that organizes information into small packets for movement in the network or over the internet?
   a. TCP (transmission control protocol)
   [Correct. TCP identifies the devices sending and receiving data and organizes the information into small packets.]
   b. HTTP (hypertext transfer protocol)

[HTTP is the protocol that allows communication through the internet.]

c. UDP (user datagram protocol)
[User datagram protocol (UDP) is a communication protocol that works across the internet for time-sensitive transmissions.]

d. STP (standard transfer protocol)
[Standard transfer protocol was not one of the protocols discussed in this section.]

[Answer: A]

9. Microsoft 365 is an example of _____.
   a. HTTP
   [HTTP is the set of rules that allow communication through the WWW of hyperlinks between a client and a server.]
   b. LAN
   [A LAN is a local area network used in businesses.]
   c. a Web application
   [Correct. Microsoft 365 is a web application that contains software for specific tasks such as word processing.]
   d. an e-commerce site
   [An e-commerce site is a website for buying products or services.]

[Answer: C]

10. _____ is the language used behind the scenes for website formatting.
   a. HTTP
   [HTTP is the set of rules that allow communication through the WWW of hyperlinks between a client and a server.]
   b. HTML
   [Correct. HTML provides the structure on which web pages are based.]
   c. URL
   [The uniform resource locator (URL) is an address, similar to a postal address, that directs the user to a unique location or page on the internet.]
   d. IP address
   [The IP address is a unique combination of characters used to identify the location of a host computer.]

[Answer: B]

11. What is Wikipedia?
   a. an internet service provider
   [Wikipedia does not provide internet access.]
   b. a web browser on mobile phones
   [A web browser is used to search the internet.]
   c. a domain name
   [Wikipedia is not the domain name for the web page.]
   d. a free source of information
   [Correct. It was founded in 2001 as a nonprofit organization with the goal of giving free access to information for everyone.]

[Answer: D]

12. _____ is the protocol used to connect computers together in a LAN.
    a. HTML
       [HTML is a series of commands that describe attributes such as the font size and background colors of the displayed page.]
    b. Ethernet
       [Correct. Ethernet provides the protocols used to connect computers in a local area network or LAN.]
    c. IP address
       [The IP address is a unique combination of characters used to identify the location of a host computer.]
    d. Web application
       [A web application is a software program that is not installed directly onto the user's computer.]

[Answer: B]

13. Which operator is used to search partial words on the internet?
    a. *
       [Correct. The asterisk (*) is used to search partial words.]
    b. |
       [This symbol (|) is used to search two words at the same time.]
    c. +
       [The plus sign (+) is used to include a word in a search.]
    d. –
       [The negative sign (–) is used to exclude a word from a search.]

[Answer: A]

14. _____ refers to a private network meant for internal company use.
    a. Cloud
       [The cloud describes servers that are located at different locations and that are accessed via the internet.]
    b. Cloud computing
       [Cloud computing takes many of the resources that were traditionally stored on individual computers and moves them to internet servers.]
    c. Internet
       [The internet is the World Wide Web.]
    d. Intranet
       [Correct. An intranet is a private network for internal company use.]

[Answer: D]

15. Cloud computing was first introduced in what year?
    a. 1982
       [Cloud computing came much later than 1982.]
    b. 2002
       [Correct. The first cloud computing service was Amazon Web Services (AWS), which launched in 2002.]
    c. 1996

[The term *cloud* was first used in 1996 by a researcher at Compaq.]

d. 2016
[Cloud computing was introduced earlier than 2016.]

[Answer: B]

16. _____ is a set of principles and best practices designed to prevent unauthorized access to a system.
    a. Two-factor authentication
    [Two-factor authentication is a specific example of a practice used to prevent unauthorized access.]
    b. Biometrics
    [Biometrics refers to the practice of using physical markers to restrict access.]
    c. Data masking
    [Data masking refers to removing personally identifiable information from data.]
    d. Password management
    [Correct. Password management is meant to prevent unauthorized access to a system.]

[Answer: D]

17. Corporate espionage refers to _____.
    a. trespassing on a competitor's property
    [This is an example of corporate espionage.]
    b. wiretapping a competitor's office
    [This is also an example of spying on a competitor.]
    c. domain hacking
    [This is another example of corporate espionage.]
    d. all of the above
    [Correct. All are examples of corporate espionage.]

[Answer: D]

18. Cookies are defined as _____.
    a. the practice of protecting digital information from unauthorized access, corruption, or theft
    [This is a definition of computer security.]
    b. small data files from websites that are deposited on a user's hard disk
    [Correct. Cookies keep track of your browsing and search history, collecting information about your potential interests so companies can tailor advertisements to you.]
    c. a list of web pages a user visits, stored on a computer's browser
    [This is a definition of browser history.]
    d. ads that entice users to click on them
    [Cookies are not ads; they are small data files from websites.]

[Answer: B]

19. _____ encrypts information on your computer, making it inaccessible until you give the hacker something valuable.
    a. Phishing
    [Phishing refers to attempts to get your personal information over the internet.]
    b. Data masking

[Data masking refers to removing your personal information from data to protect your privacy.]

c. Spoofing
[Spoofing is communication that looks official, but is really trying to obtain your personal information.]

d. Ransomware
[Correct. Ransomware is malicious software that encrypts computer data, rendering it useless and inaccessible, forcing the owner to exchange something of value to regain access.]

[Answer: D]

Practice Exercises

20. Conduct research to show how mobile, imaging, and gaming devices have contributed to the U.S. economy and the global economy.

[Answer: It might be hard to imagine a world without access to information at our fingertips or, for that matter, a world without Xbox or PlayStation. Today, many households worldwide no longer have a traditional landline phone but regularly use mobile phones instead. Most households have gaming systems, some more than one, that are used for more than simply playing games. The adoption of these mobile technologies has had a large economic impact in the United States and worldwide. New industries have emerged and other industries such as clothing have been impacted. The creation of apps has led to an entirely new industry that has created many jobs worldwide. About 40 percent of all business transactions are conducted on a mobile phone device. We may use mobile technology to stay in contact with out-of-town family members. We also use our phones to make everyday purchases and to connect to our bank and our health insurance provider.]

21. Using some of the internet search strategies discussed earlier in the chapter, choose an industry and research some leading technologies in that industry.

[Answer: Answers will vary. If the student chooses retail, for example, they might uncover such technologies as 3-D printed apparel, virtual dressing rooms in traditional stores, increased use of technology centered on delivering products to customers quickly, and the use of AR in retail apps.]

22. Think about the concept of lifelong learning. Using the strategies outlined in the chapter, discuss how lifelong learning can be incorporated into your life.

[Answer: Answers will vary. You would expect the student to use the steps outlined in the text to provide a specific example. First, they would list some personal goals—for example, securing a professional credential such as a CPA. Next, they would discuss what they would like to know about the CPA. They might want to investigate the requirements or the concepts on the CPA exam. They would then go about listing resources to begin work toward the goal. They might contact a local college to take an accounting course, or they might find a preparatory class online for the exam itself. Finally, the student would discuss how they plan to work this into their lives. For example, they might say that they plan to spend two hours per day studying for the exam.]

23. A computer's memory capacity and speed have an impact on its price. Perform a Google search to compare the prices of at least three laptops and three desktop computers with various speeds and memory capacities. Which is more expensive, and why? What factor has the greatest impact on the price of the computers?

[Answer: Answers will vary based on the actual brands selected. Here is a sample answer:
Laptops:
Dell Inspiron 15.6", 8GB memory, 1 gig processor $380
Lenovo 15.6", 8GB memory, 3 gig processor, $350
Asus 14", 8GB memory, $230
Desktop computers:
HP Envy, 16 GB memory, 2.1 gig processor, $1,000
Dell Inspiron, 12GB, 2.5 gig processor, $600
Lenovo, 12 GB, 2.9 gig processor, $550
The biggest driver of price seems to be the brand and type. In general, desktop computers are more expensive than laptops. The other factor that seems to have an impact on price is the processor type, not just the speed.]

24. Go to census.gov. Select the Explore Data section. Find your county and identify a variable of interest to you, such as education or poverty. List some key findings you discovered about your county from the data on the site.

[Answer: Answers will vary. Students should demonstrate that they were able to navigate the site and have accessed the statistics. Appropriate responses might include something like the percentage of households living in poverty in their county, median income for the county, or the percentage of the county's population with a college degree.]

25. You want to find out about music festivals happening this summer close to your home. First, follow your typical procedure for conducting an internet search. Then, conduct another internet search for the same information, this time using some of the techniques discussed in the chapter. What differences do you notice in the results?

[Answer: Answers will vary based on the student's choice of search terms and location. You should expect to see students use some of the operators in their search and discuss the differences between the two outcomes in their search results. Possible answers might include "fewer results" or "more relevant results."]

26. Conduct an internet search for a topic that interests you. Then, navigate to a website devoted to that topic. Using the strategies discussed in this chapter, evaluate the credibility of the information contained on the site.

[Answer: Answers will vary based on the website. For example, a student could choose the coronavirus pandemic as a topic and start by going to a particular website associated with the pandemic. The student might then go on to note that the website has not been updated since April 2020, seems to be based on opinion, and appears to be funded by a group they have never heard of before. This might lead the student to question the credibility of the information contained on the site.]

27. View your social media account (or someone else's, if you don't have one). From the perspective of an outsider, what do you see? Is everything that is viewable acceptable? Would you want your employer to view this social media account?

[Answer: Answers will vary depending on what site the student views. If the student has never used social media, you can point them to X (Twitter) or LinkedIn as opposite ends of the acceptability spectrum, with LinkedIn almost always being acceptable while Twitter is questionable, depending on the topic.]

28. Discuss how you would protect your personal computer, including access restriction and prevention of data loss.

[Answer: This is a good place for students to think about their relationship with social media. There are generational differences when it comes to a sense of privacy, with digital/social media natives having very different relationships than their predecessors. It will be worthwhile to draw them through an exercise that illustrates the pervasiveness and far-reaching impact of posting online, and then have them reflect on their findings.]

Written Questions

29. Discuss how today's technology has improved the workplace.

[Answer: The use of technology in the workplace today has changed how people communicate and complete the necessary tasks for business operation, including accounting, human resources, recordkeeping, and money exchange. Modern technology enables businesses and organizations to complete tasks more quickly, to realize cost savings through the use of enhanced data and information systems and digital transactions, and to reduce errors in accounting and recordkeeping. In addition, with today's technology, an organization's marketing materials and communication with customers can be enhanced with colorful graphics and virtual interactions.]

30. How was computing in the workplace instrumental in the development of computing for personal use?

[Answer: The use of computers in the workplace prompted innovation, leading to the development of capabilities such as printing, storing information, and using communication tools. The invention of the microprocessor made computing units more affordable, even for small businesses. This prompted a shift toward offering computers to individual consumers as a form of family entertainment. Over time, the average consumer has come to accept the functionality of computers beyond their entertainment value.]

31. How are mobile devices, imaging, and gaming interconnected?

[Answer: The technologies often coexist on the same device. For example, nearly all mobile phones have a digital camera, and many people have games downloaded on their mobile devices. Additionally, gamers can use apps on their mobile phones to communicate with other players outside of the gaming console. Companies such as Microsoft and Google are offering phone plans and/or creating new mobile phones to bring to the market. It is hard to imagine a world in which the three technologies are not interconnected.]

32. Discuss the key differences between AR and VR.

[Answer: In AR, or augmented reality, digital objects are embedded into an actual live photo or video. The majority of AR is not digital. In VR, or virtual reality, the majority of the scene is simulated, and the user can interact within this simulation. The majority of VR is simulated and digital, not an actual environment.]

33. What are some advantages to using VR in business?
[Answer: Using VR simulations can save time and money on research and development. You can use the technology to test a product concept or an advertisement with no actual prototype of the product. You can also use VR to keep customers engaged, as with the NBA example in this chapter. VR can be used to allow users to interact with a space or product from remote locations.]
34. What are some advantages of using smart spaces in business today?
[Answer: Smart spaces can be used to manage utility costs and add convenience for employees. Smart offices can make employees more productive by giving them more time to focus on creative and strategic tasks as opposed to routine responsibilities. Job satisfaction can be increased by giving employees more control over their workspaces. These smart spaces can be programmed to user-specific settings and can also be controlled remotely. Smart spaces in business can enhance security to reduce the costs associated with theft and to protect employees' information.]
35. What is the information processing cycle and why is it important?
[Answer: It is the sequence of events that takes place in processing information: input, processing, storage, and output. It is important because this is the fundamental activity and purpose of a computer. Input consists of entering the data and information into the computer system. Processing involves a series of operations performed by the computer to organize, interpret, or otherwise make use of the information input into the computer. Output entails viewing this processed information in a way that makes sense to the user, either through the monitor or as a printout. Finally, storage is the process of saving information into the computer for future use.]
36. Why is it important to understand the basic components of a computer?
[Answer: Students should reference the need to be able to troubleshoot any problems that may arise, the ability to shop for a suitable computer for their personal and business needs, and the knowledge of how to service and care for their computers and computer systems.]
37. Which network would you likely have in your home? At your place of business?
[Answer: Home networks are personal area networks (PANs), while businesses use local area networks (LANs).]
38. What capabilities must a device have to be called a computer?
[Answer: It must be able to execute a programmed list of instructions and respond to new instructions.]
39. If you were setting up a computer network in your small business, what security measures would you take to guard against cybercrime and security breaches?
[Answer: Students might mention network adapter cards, secure protocols such as HTTPS and secure file transfer, and firewalls.]
40. Explain some criteria you should use in evaluating the credibility of sources for business research.
[Answer: The credibility of information found on the internet must be a consideration when conducting business research. You should investigate things such as the author's affiliations and the currency of the website itself. You should also watch out for opinions and overly biased interpretations of the information that you find. Generally, you will want to use the method of

triangulation to help ensure your information is reliable. Triangulation is the process of locating several sources that show agreement in the information you are researching.]

41. Outline some tips for conducting effective online searches.

[Answer: There are several ways to make your online searches more effective. Using specific or unique terms will help narrow your search. You can also use operators such as quotes or "-" to further refine the search. Finally, with many search engines, you can change specific settings to get the desired results.]

42. Discuss some of the key advances with the internet that have increased business productivity.

[Answer: Business efficiency has increased as a result of some advances in internet technology, such as LANs, e-commerce, and collaboration tools. LANs enable employees to share resources such as printers and programs. With e-commerce, businesses can conduct transactions more securely and quickly. Finally, the collaboration tools provided by Office 365 and other web-based applications allow users to interact across geographic borders in real time.]

43. Discuss some advantages and disadvantages of using cloud computing for business and for personal use.

[Answer: Using cloud computing in the workplace offers many advantages, including increased collaboration, real-time delivery of data, and cost efficiencies. For personal use, cloud computing provides access to enhanced storage capabilities for photos and other files, as well as access to resources. A major disadvantage for both businesses and individuals is the challenge of maintaining the security of information stored in the cloud.]

44. Discuss some of the advantages of using the Internet of Things in business and for personal use.

[Answer: The Internet of Things (IoT) connects the internet to objects that go beyond computers. Using the IoT, businesses can get real-time feedback on processes and consumer information that they can use to improve products. They can also automate some simple tasks. Individuals can use internet connectivity to help manage work/life balance or to save money on heating and other utility costs. For example, using a family calendar to which all family members have access can help make sure that appointments are kept and other household tasks are maintained. Using a feature such as an electronic grocery list can make grocery shopping more efficient. These are just a few of the examples of how the IoT can be advantageous for both business and personal use.]

45. Describe some ways that companies can protect their systems from cybercrime.

[Answer: Here are some ways a company can protect its systems from cybercrime: It can use security suites that protect user privacy and security while employees are on the internet. The company should use a firewall and should also require multifactor authentication for employees. Finally, the company can use encryption, which will make unauthorized access virtually impossible.]

46. Define ransomware, malware, and phishing.

[Answer: *Ransomware* is malicious software that encrypts computer data, rendering it useless and inaccessible, and forces the owner to pay a ransom to regain access. *Malware* is software that is designed with the purpose of damaging a user's computer system once it has gained access to that system. *Phishing* describes attempts to get users to interact with an email or