Chapter 1

True or False

1. Virtual reality is a form of immersive multimedia.
True

2. Contemporary multimedia is defined as ANY combination of text, graphics, and sound.

False (through a digital processing device)

3. Basic interactivity includes clickable links to related information.

False (Hypermedia)

4. Vannevar Bush was the early pioneer of multimedia who envisioned the use of "trails" to build associations between related items of knowledge.

True

5. The modern electronic computer is a practical embodiment of Turing's universal machine.

True

6. Xanadu was to be a full-blown multimedia computer that could embody any medium.

False (Dynabook)

7. The first graphical browser application for using the Web was Netscape
False (Mosaic)

8. CD-ROMs offered the first practical solution to storing and delivering multimedia files.

True

9. Advanced flight simulators are an example of immersive multimedia.

True

10. The "vocoder" was an image input device for Memex I.

False (spoken word input)
11. Memex II could demonstrate a form of judgment because it could learn from

experience.

True

12. A major goal of the Open Source Initiative is to promote the sharing of creative works.

False (Creative Commons)

13. The goal of Ted Nelson was to design a computer to support the ways people perceive, learn, and create.

False (Alan Kay)

14. The Dynabook was designed to be a "modeless" device where users could move seamlessly between different media.

True

15. Tim Berners-Lee developed a system of hyperlinked information known as "nodes" that could be accessed across networks.

True

Fill-in-the-Blank

1. Form of multimedia where the user has no control over the flow of information is called _____.

Ans: Non-interactive

2. _____ multimedia embodies aspects of intelligence and decision making.

Ans: Adaptive or Intellimedia

3. The _____ _____ is an imaginary device with three main components that carries out an effective procedure.

Ans: Turing machine

4. The intuitive interface designed by Alan Kay is called a _____.

Ans: GUI or graphical user interface

5. The _____ computer was conceived as a multimedia computer by Jobs and Wozniak.

Macintosh or Apple

6. Computers that store and distribute information on the Web are called _____.

servers

7. Every client computer must have _____ software to access and use Web resources.

browser

8. _____ _____ is a field of computer science dedicated to developing computers that behave as if they have human intelligence.

Artificial Intelligence (AI)

9. A language tutorial that adjusts lessons based on student responses is an example of _____ multimedia.

Adaptive or intellimedia

10. The British mathematician who developed a theoretical universal machine was _____ _____

Alan Turing

11. _____ was developed by Nelson as a vast dynamic, hypertext library.

Xanadu

12. The _____ resolved the problem of cross-platform compatibility since all computers connected to the network could read the same information.

WWW

13. The hypothetical _____ machine would capture data using a "Cyclops camera."

Memex

14. Alan Kay's _____ became the model for intuitive, accessible multimedia computing.

Dynabook

15. _____ _____ licenses require copyright owners to acknowledge the creator of the original work.

Creative Commons

Multiple Choice

1. The form of multimedia that has a structure of related information created by the developer is:

A. Interactive
B. Hypermedia
C. Intellimedia
D. Kiosk

2. A hypothetical machine described by Vannevar Bush to control the "growing mountain of research" was called a:

A. Search engine
B. Hard drive
C. Memex
D. Differential Analyzer

3. An early pioneer in multimedia development who introduced innovations such as the mouse, word processing, and email.

A. Douglas Engelbart
B. Alan Turing
C. Alan Kay
D. Ted Nelson

4. The pioneering theorist in computer communication who coined the term "hypertext."

A. Douglas Engelbart
B. Tim Berners-Lee
C. Alan Kay
D. Ted Nelson

5. British engineer who developed the system that would become the World Wide Web.
A. Alan Turing
B. Alan Kay
C. Tim Berners-Lee
D. Ted Nelson

6. They were inspired by research at PARC to develop the Macintosh computer.
A. Steve Jobs
B. Tim Berners-Lee
C. Steve Wozniak
D. Ted Nelson

Ans: A & C

7. Client based software required to access information on the WWW.
A. Operating system
B. Browser
C. Email
D. Hypertext

8. Form of multimedia that draws the user into alternative worlds to engage them emotionally and intellectually.
A. Immersive
B. Adaptive
C. Kiosk
D. GUI
9. A form of AI that incorporates knowledge of content experts into computer applications.

A. Memex II
B. Xanadu
C. Expert System
D. Turing Test

10. The items of information linked together in Berners-Lee "web of notes."

A. Nodes
B. Trails
C. Links
D. Icons

Paragraph Response

1. Explain the new approach to organizing information that was introduced by Bush, Nelson, and Lee. Give a specific reference to each person's contribution to this approach.

Ans: The new approach to organizing information was based on how items of information are related to each other. Traditionally information was categorized in ways (such as alphabetical or numerical listings) that did not necessarily relate items in a logical or meaningful manner.
Vannevar Bush recognized that information was not usually organized "as we think" so he proposed "associations" of related information. The human mind operates by association. Data would be more useful and more easily accessed if it were related in a manner meaningful to the user. Bush developed a theoretical system called Memex where a series of trails of associations identified related items that could be saved, copied, shared, and linked to other trails.
Ted Nelson's approach to information is directly related to Vannevar Bush. He coined the term "hypertext" to describe interactive text that is linked to other information. He emphasized the associative quality of human thought and extended the concept by making the computer central to the task of re-organizing and presenting information. Nelson proposed Xanadu as a dynamic, ever-expanding, hypertext library available to everyone.
Tim Berners-Lee continued the vision of Bush and Nelson by adding a computer

network as the main backbone to share the associations of linked information. Lee proposed a "web" of notes with links between them. This system was remotely available across networks and cross-platform compatible. Lee's system became the World Wide Web, a collection of servers, clients, software, and dynamic information inter-connected through hyperlinks.

2. Identify five reasons to anticipate further development in multimedia computing. Choose two of these reasons to explain and offer a specific example.

Ans: Five reasons to anticipate further developments in multimedia are first, a continuing technical revolution in hardware and software. Second, there is continued integration of computers and other devices. Third, there is a digital merger of disparate technologies and industries. Fourth is the continued development of wireless communications. Finally, there is an expansion of creative opportunity.

Chapter 2

True or False

1. Bits are the symbols used to encode digital data.

True

2. Digital data consists of separate discrete units.

True

3. An effective code is one that does not waste processing, storage or transmission resources.

False (Efficient)

4. Data is either digital or discrete.

False (Analog)

5. A file extension is a series of numbers that designate a file size.

False (letters to designate file type)

6. A file format defines how instructions and data are encoded in a computer file.

True

7. A computer platform refers only to the hardware of the computer system.

False (software also)

8. Native file formats are not usually compatible with other applications.

True

9. Digitization is the process of converting digital data to analog data.

False (convert analog to digital data)

10. All sampling of data involves some quantization.

True

11. Sample resolution measures the number of samples taken of the analog media

False (sample rate)

12. Sample rate and spatial resolution are the two main factors that determine the quality of digital images and sound.

False (sample resolution)

13. MP3 is a popular form of lossless compression.

False (lossy)

14. Digital information supports full-fidelity duplication without generation decay.

True

15. One challenge for digital data is the durability and reliability of long-term storage media.

True

Fill-in-the-Blank

1. Data made useful, applied, or interpreted to produce understanding is called _____.

Information

2. The process of assigning bits to a data item is called _____ _____.

Digital encoding

3. A unit of eight bits to represent a single data item is called a _____.

Byte

4. _____ code uses 8 bits to represent a wider range of characters than can be represented with 7 bits.

ASCII-8 or extended ASCII

5. The process of analyzing an element of an image or sound to represent it in a digital code is called _____.

Sampling

6. _____ resolution refers to the number of samples taken within a measured area of an image.

Spatial

7. Increasing the number of bits from 8 to 24 to encode a digital color photo will decrease the effects of _____

Quantization

8. Command-based sound is usually described as _____ sound because it is put together by the computer.

Synthesized

9. _____ is the process of re-encoding digital data to reduce file size.

Compression

10. RLE compression is a form of _____ compression because it retains all the original digital information.

Lossless

11. _____ _____ is the process of transforming one file type to another.

File conversion

12. The _____ _____ identifies the file type or program that created the file.

File extension

13. A picture element in a digital image is referred to as a _____.

Pixel

14. A _____ image is sampled by recording the colors of its individual pixels.

Bitmapped

15. A specialized program that changes the original file to a smaller file and also transforms the smaller file to usable data is called a _____

Codec

Multiple Choice

1. An eight-bit code allows for ____ distinct data items.
A. 8
B. 128
C. 256
D. 512

2. A three-bit code produces _____ distinct combinations.
A. 6
B. 12
C. 8
D. 24

3. The file size that contains approximately 5,242,880 bytes is:
A. 5Kb
B. 5MB
C. 5Mb
D. 6GB

4. An example of a description-based encoded digital file is:
A. MIDI sound file
B. Photoshop photo file
C. Illustrator image file
D. Flash animation file

5. An example of a program file is:
A. Flash animation file
B. Photoshop image file
C. Illustrator image file
D. Flash application file

6. A simple strategy to detect digital errors is to add a _____ _____ to the code.
A. Start Flag
B. Error Check
C. Party Bit
D. Bit Count

7. The rate at which digital information can be transmitted over a communication medium is known as:
A. Sample Rate
B. Bit Rate
C. Digitization
D. Bandwidth

8. A 16-bit code to designate over 65,000 individual characters is known as:
A. Unicode
B. Extended ASCII
C. RLE

D. DSL

9. An advantage of digital information is:
A. Preservation
B. Distribution
C. Standardization
D. Quantization

10. An important file consideration for multimedia developers is:
A. Location
B. Compatibility
C. Digitization
D. Generation decay

Paragraph Response

1. Identify and explain the three major steps for effective file maintenance.

Ans: The three steps are identification, categorization, and preservation. Identification requires file names that provide clear descriptions of the contents and appropriate file types. Categorization is the process of grouping related files using appropriate folders, such as folders for images, sounds, and video. Preservation is the process of preparing data for storage and backup copies as well as distribution of files to appropriate individuals and departments for future use.

2. Identify and explain the two major approaches to digitally encoding media. Give a specific example of each approach.

Ans: The two approaches are description-based and command-based encoding. Description-based encoding creates a file that contains data for each discrete element of the image or sound. A bitmapped image file, for example, contains code for each individual pixel of the sampled image.

Command-based encoding stores a set of instructions the computer will execute to produce the image or sound. The instructions are encoded as bits and bytes. A MIDI sound file, for example, contains computer commands that are executed through specialized software and hardware to produce the sounds.
Note: Specific examples may include sampled sound as description-based, and vector graphics as command-based.

Chapter 3

True or False

1. A microprocessor is a CPU on a single silicon chip.

True

2. A common category of computer systems is a multi-computer.

False (supercomputer, mainframe, microcomputer)

3. The two most common computer platforms are Windows-based PC's and Macintosh.

True

4. The hard drive is an essential component of the system unit.

False (external storage device)

5. The control unit is an essential component of the microprocessor.

True

6. Clock speed measures the rate of data transfer to the CPU.

False (rate CPU carries out instructions)

7. Firewire devices require an independent power source.

False

8. The two possible paths that data flows through hardware interfaces ports are parallel and sequential.

False (parallel and serial)

9. Digital data is encoded as pits and lands on optical disc technology.

True

10. Compact Disc formats include CD-R, CD-RW, and DVD.

False (not DVD)

11. A constant linear velocity disc stores pits and lands in a uniformly-spaced, continuous spiral from center to outside edge to increase the storage capacity.

True

12. OCR scanners can capture text and store it as an ASCII file.

True

13. Digital cameras, scanners, and LCDs are popular input devices.

False (not LCD)

14. The World Wide Web is the Internet.

False (World Wide Web is a set of protocols bringing interactive multimedia to the Internet)

15. Wi-Fi and Bluetooth are popular wireless standards.

True

Fill-in-the-Blank

1. Laptop, desktop, and tablet computers are all forms of a _____.

Ans: Microcomputer or Personal computer

2. The most advanced, powerful, and expensive computer of the day is known as a _____.

Supercomputer

3. A _____ is a complex integration of millions of transistors that execute instructions and manipulate data.

CPU

4. _____ is a form of primary memory that contains addressable storage for data and instructions.

Ans:Random Access Memory or RAM

5. _____ _____ are connections to add peripheral devices to the system board.

Ans: Interface ports

6. _____ is a widely supported standard interface to connect up to 127 devices to a single port on the system board.

Ans: USB

7. _____ _____ measures the speed at which data moves between secondary storage and RAM.

Ans: Transfer rate

8. Optical storage relies on a _____ beam to read and write data on specially coated discs.

Ans: Laser

9. A popular form of solid-state storage is a USB _____ drive.

Ans: Flash

10. _____ resolution measures the number of dots per inch captured by a CCD.

Ans: Spatial

11. One advantage of a _____ display is that it uses less power than a LCD display.

Ans: LED

12. A _____ is an output device that creates sounds electronically.

Ans: Synthesizer

13. _____ _____ uses copier-like technology to fuse text and images to paper.

Ans: Laser printer

14. A _____ is a collection of computers connected through communication links.

Ans: Network

15. A _____ defines the address path of a hyperlink in Web documents.

Ans: URL

Multiple Choice

1. Devices that facilitate input, output, and storage are known as:

A. Internal devices
B. Peripheral devices
C. Electronic devices
D. Processing devices

2. The item that is not considered part of the system unit is:
A. CD-ROM
B. CPU
C. RAM
D. ROM

3. A performance factor that affects the efficiency of the CPU is:
A. Throughput
B. Bandwidth

C. Bus width
D. Transfer rate

4. A secondary storage option for backing up important digital video files is:
A. CD-DA
B. DVD disc
C. ADC
D. RAM

5. Which of the following devices does not use magnetic storage:
A. Zip drive
B. Hard drive
C. Flash drive
D. Tape drive
6. Optical media that utilizes multi-layer storage for capacity of 17GB.
A. CD-RW
B. DVD
C. CD-DA
D. CLV

7. An affordable line printer that delivers text and color output through drops of ink.
A. Dot matrix
B. Photo printer
C. Color laser
D. Inkjet

8. The protocol to manage flow of data on the Internet is known as:
A. Wi-Fi
B. FTP
C. TCP/IP
D. URL

9. A common set of protocols to manage flow of data on a LAN is:
A. Bluetooth
B. Ethernet
C. Firewire
D. Pipelining

10. Computers that have software to open and process data files transmitted on a network.
A. Client
B. Router
C. Server
D. Access Point

Paragraph Response

1. Identify and explain the four major steps in a complete machine cycle.

Ans: The four steps in the machine cycle are fetch, decode, execute, and store. During a machine cycle the control unit will fetch data and instructions from RAM and transfer the electronic bits to a holding area known as registers. The control unit decodes the instructions. The ALU then will execute the instructions and store the results in the registers. When the instruction is complete, the control unit will return the result from the registers to RAM.

2. Identify and explain the five main uses of secondary storage.

Ans: The five main uses of secondary storage are saving, backup, distribution, transport, and archiving. Saving is the process of saving data from electronic storage to secondary storage for further processing. Backup is a transfer of the entire hard drive or critical volumes to another device to preserve against data loss, theft, natural disaster, or system crashes. Distribution is a third use of secondary storage to send data or programs through mail or retail sales of shrink-wrap applications. Transport is a common use for secondary storage to carry data from one location to another. The Flash drive is a device often used to carry digital files from one computer to another. Finally, archiving is the process of storing data for long-term preservation. Files no longer in use, but critical to the organization might be archived to optical storage or RAID drives and stored off-site.

3. What is cloud storage? Identify and discuss the major advantages and disadvantages of cloud storage.

Ans: Cloud storage is a form of secondary storage on remote servers provided by a network service. One advantage of cloud storage is off-site backup of important files. Another is ubiquitous access: files can be readily retrieved and saved wherever an Internet connection is available. A third is that files can be readily shared with others. Possible drawbacks to cloud storage include security and reliability concerns. Remotely stored files are at risk for access by unauthorized users and server failures may result in lost data.

Chapter 4

True or False

1. Early computers relied on a command line interface to control the operating system.

True

2. Timesharing operating systems allocate the processor to multiple simultaneous

users.

True

3. Virtual memory is a method to expand the capacity of the hard drive.

False (capacity of RAM)

4. Disk management tools are common utility programs to optimize operating system functions.

True

5. A file cannot be opened if the filename is missing an extension.

False (file can be opened without an extension)

6. Directories are important for effective file management on hard drives.

True

7. Machine code is a low-level programming language.

True

8. All computer programs must be converted to Assembly code before the processor can execute the commands.

False (Machine)

9. Source code can be translated into executable programs using a compiler.

True

10. Text editor software is an application that generates formatted text in a variety of fonts and styles.

False (generates ASCII plain text)

11. Graphics applications generate 2-D and 3-D images.

True

12. The final stage of 3-D graphics is modeling.

False (Rendering)

13. A synthesizer is software to create the digital commands that generate sound.

False (sequencer)

14. Animated objects are placed on a timeline where effects are applied and motion

paths are controlled.

True

15. One common metaphor to organize content in authoring applications is a card or page.

True

Fill-in-the-Blank

1. A _____ _____ provides a means to communicate with programs and hardware on the computer system.

Ans: User interface

2. _____ is the ability of the operating system to manage more than one application concurrently.

Ans: Multitasking

3. _____ _____ are programs that tell the operating system how to communicate with peripherals.

Ans: Device drivers

4. _____ are containers for data and programs.

Ans: Files

5. Operating systems prepare a disk for storage by _____ the medium.
Ans: Formatting

6. A _____ _____ _____ provides direct input to the operating system without the use of an intervening tool such as a mouse.

Ans: Natural user interface

7. The two main categories of programming languages are _____ and _____.

Ans: Procedural and non-procedural.

8. _____ - _____ programming languages are a form of non-procedural programming that use self contained modules of code that hold data and instructions for a particular task.

Ans: Object-Oriented

9. A _____ converts the entire source code of high-level languages to machine code to create an executable file.

Ans: Compiler
10. A program such as Word that performs a specific task is called an _____.

Ans: Application

11. _____ applications are used to integrate media components and provide a user interface.
Ans: Authoring

12. _____ programs create basic graphic shapes generated from mathematical formulas.

Ans: Draw

13. _____ software is used to create and edit still images that produce the illusion of motion.

Ans: Animation

14. Digital representations of analog sound sources captured from microphones or other devices are known as _____.

Ans: Sampled

15. _____ is a simplified form of programming provided within an application to extend its functionality or automate routine tasks.

Ans: Scripting

Multiple Choice

1. Preemptive multitasking gives the operating system additional control over:

A. Multiple users
B. Virtual memory
C. System resources
D. Device drivers

2. Programs that translate and execute high-level languages one command at a time are known as:
A. Assemblers
B. Compilers
C. Interpreters
D. Translators

3. The smallest unit of disk space that contains data is called a:

A. Track
B. File
C. Cluster
D. Byte

4. Graphics programs used to edit scanned images or digital photos are known as:
A. Draw
B. Paint
C. 3-D
D. Synthesized

5. _____ are imported , arranged on a timeline, and previewed during video editing.
A. Sounds
B. Images
C. Frames
D. Clips

6. A common video file format is:
A. .zip
B. .mov
C. .pdf
D. .jpg

7. Some authoring applications use icons arranged on a _____ _____ to develop a range of media products.
A. Time line
B. Flow line
C. Movie clip
D. Frame sequence

8. Which of the following is not an application suite?
A. iWork
B. Open Office
C. PowerPoint
D. Microsoft Office

9. Media utility programs are not used to:
A. Manage and convert file types
B. Compress files
C. Record video
D. Catalog images and fonts

10. Which of the following is not a media-specific application?

A. Flash
B. Photoshop
C. Word
D. Audacity

Paragraph Response

1. Identify and explain the three main categories of software. Give a specific example of each.

The three categories of software are operating systems, applications, and programming languages.
Operating systems control hardware devices, provide a user interface, execute application programs, and offer a number of built-in utility programs. Windows or OSX are examples of operating systems. Applications perform a specific task, such as word processing or image editing. Some applications, such as iTunes, are bundled with the operating system, but most are purchased or downloaded for a specific purpose (for instance, Adobe Photoshop or Flash).
Programming languages are software for developing other programs. Programming languages are used to code other operating systems or applications. The language is bundled with a computer, downloaded, or purchased. Examples include Visual Basic, C#, Perl, Lingo, and Java.

2. Identify and explain the two major types of software for multimedia development. Give specific examples of each type.

The two major types of application software are media-specific and authoring applications.
Media-specific applications are used to create and edit individual media elements for a multimedia project. Images could be developed in Photoshop or Corel Draw and video might be developed using a program such as Final Cut. Authoring applications contain software tools to integrate media components and provide a user interface for the multimedia project.
Director and Flash are authoring applications that can assemble media such as images, sounds, and video into a single presentation, add interactivity through scripts and buttons, and provide a user interface to control the multimedia product.

Chapter 5

True or False

1. Two major categories of typefaces are serif and italics.

False (serif and sans serif)

2. A point is a measure of the size of type.

True

3. Leading is the process of adjusting line lengths to produce straight edges on both margins.

False (justification)

4. Alignment is the position of text relative to the document's margins.

True

5. Two coding schemes for digital text are ASCII and Unicode .

True

6. ASCII text is defined using groups of four 0s and 1s.

False (seven or eight 0s and 1s)

7. Bitmapped fonts are generally distorted when they are enlarged.

True

8. True Type fonts use an outline font technology.
True

9. Jaggies are a common problem when fonts are displayed on monitors as a pattern of pixels.
True

10. Aliasing is a blending process to overcome the problem of jaggies on display monitors.

False (anti-aliasing)

11. Unicode is a type of graphics text.
False (editable text)

12. HTML stands for Hypermedia Link Markers.

False (HyperText Markup Language)

13. The content items joined through hypertext are referred to as nodes.

True

14. OCR is software that converts spoken words into ASCII text.

False (converts scanned text)

15. Speech synthesis software can generate speech sounds that comprise a spoken language.

True

Fill-in-the-Blank

1. A complete set of characters of a particular typeface, style, and size is traditionally called a _____.

Ans: Font

2. The spacing between all the printed letters is the _____.

Ans: Tracking

3. Upper and lower refer to a letter's _____.

Ans: Case

4. Leading refers to the _____ between lines of text.

Ans: Spacing

5. _____ fonts use binary code to define each pixel of the letter to be displayed.
Ans: Bitmapped

6. Computer text applications often inaccurately refer to typeface families as: _____.

Ans: Font

7. _____ is a new 16-bit code standard to accommodate the characters and symbols in foreign languages.

Ans: Unicode

8. _____ blends text to the background color to minimize the appearance of jagged outlines of characters on computer displays.

Ans: Anti-aliasing

9. _____ text allows developers to apply artistic effects to words since they are stored as images.

Ans: Graphics

10. Fonts that are incorporated into the operating system are referred to as:

Ans: Installed fonts

11. _____ _____ software captures text from sound patterns of human speech.

Ans: Speech recognition

12. A standard language to display text and other media through a browser is _____.

Ans: HTML or xHTML

13. _____ text is easily revised, searched, spell-checked, and reformatted.
Ans: Editable

14. The client software application required to view html documents is called a

Ans: Browser

15. The point of departure in a hypertext link is called a link _____.

Ans: Anchor

Multiple Choice

1. The process of adjusting spacing between pairs of letters is known as:

A. Tracking
B. Kerning
C. Point size
D. Leading

2. The property of typefaces that defines the line thickness of the letter is called:
A. Leading
B. Case
C. Style
D. Weight

3. Arial, 10pt, bold is an example of a:
A. Font
B. Typeface
C. Style
D. Case

4. Sans serif is a main category of:
A. Script

B. Typeface
C. Case
D. Style

5. The text format developed by Microsoft and based on ASCII code with additional formatting is:
A. PDF
B. RTF
C. HTML
D. TXT

6. Linked text that leads the user from one word or phrase to another is called:
A. Synthesis
B. Link marker
C. HyperText
D. HTML

7. A cross-platform text format that preserves the original formatting is:
A. PDF
B. DOC
C. TXT
D. PSD

8. Which of the following is not a guideline for using text in multimedia applications:
A. Be respectful
B. Be consistent
C. Be brief
D. Be honest

9. Which of the following is not a reason to make text interactive:
A. Use mouse-overs for definitions and comments
B. Solicit user input
C. Use bullets
D. Use hyperlinks

10. The first stage of capturing printed text using OCR is:
A. Proof read for spelling and letter distortions.
B. Convert the letters and words into digital text.
C. Compress the image and save the file.
D. Scan page to produce a picture of the text.

Paragraph Response

1. Identify and explain the two major font technologies for computer text.

Give an advantage and disadvantage of each technology.

The two major technologies are bitmapped and outline fonts. Bitmapped fonts are displayed as a grid of pixels. Each letter is described by a series of bits to define the pixels making up the letter. Bitmapped fonts require large amounts of memory if there is a wide range of color and letter styles.
Different bitmaps must be designed for each size of text to use. They have the advantage of giving a developer precise control over the appearance of each character since they can be edited at the pixel level.
Outline fonts store a set of instructions to draw the letter rather than a mapping of pixels. Outline fonts take less memory since they are stored as a command and they can be scaled easily without distortion of the letter shape. Outline fonts do not allow a developer to edit the look of the letter at the pixel level so there is limited creativity in the overall design of the character.

2. Identify and explain the four methods of incorporating text into a multimedia application.

The four methods of adding text to a multimedia application are direct entry, copy and paste, file import, and using optical character recognition.
Most authoring applications provide a means to type the desired text into a box or field on the screen. Graphics text can often just be typed on the screen with a graphics text tool.
For pre-existing text blocks three other options exist. The developer can copy the text from another digital text file and paste it into the application. The text may also be imported into the authoring application if it exists in a compatible file format. Finally, the text can be scanned from a printed source and converted to a text file using OCR software. The scanned text may have errors so it is best to spell check and proof read any text that is converted from print using OCR.

Chapter 6

True or False

1. A line art image is composed of varying shades of color.

False (contone)

2. Computer grayscale images are generally 8-bit images.

True

3. Contone images can be reproduced with dots of ink to produce a halftone.

True

4. Line art images are often referred to as bitmaps.

True

5. The spatial resolution of images is measured in lpi on the computer monitor.

False (dpi)

6. One advantage of bitmapped graphics is smooth scaling.

False (vector graphics)

7. Resampling is the process of increasing or decreasing the number of samples in an image.

True

8. The effects of quantization are smaller image dimensions.

False (fewer colors in the image)

9. Color indexing is used to optimize the appearance of images with lower bit depths.

True

10. Digital cameras measure spatial resolution in giga-pixels or millions of pixels.

False (megapixels)

11. Scanners capture images in vector format.

False (bitmapped)

12. Vector graphics are converted to bitmapped images by a process called rasterizing.

True

13. PDF and GIF files are common vector file formats.

False (not GIF)

14. Modeling is the process of specifying the shape of a 3-D object.

True

15. Any two-dimensional line or object can be extruded to create a 3-D object.

True

Fill-in-the-Blank

1. One main type of 2-D computer graphics is _____.

Ans: bitmapped

2. The other main type of 2-D computer graphics is _____.

Ans: vector-drawn

3. A set of specific colors available to a computer at any given time is a _____ _____.

Ans: Color palette

4. Computer displays use an _____ process to produce the image colors.

Ans: Additive

5. Color resolution is determined by the number of bits/pixel or ____ _____.

Ans: Bit depth

6. Reducing the number of samples in an image is called _____.
Ans: Downsampling

7. _____ is the process of rounding off a sample to closest available value in the digital code being used.

Ans: Quantization

8. _____ _____ is "canned" artwork available on disk, online, or part of a graphic program.

Ans: Clip art

9. _____ compressed files discard some information from the original image.

Ans: Lossy

10. A _____ is a line with a particular length, curvature, and direction.
Ans: Vector

11. _____ programs are the software to create vector graphics.

Ans: Draw

12. Draw images are _____ _____, meaning the image will not change size when displayed on output devices with different resolutions.

Ans: Device independent

13. Draw programs make use of _____ to overlap portions of an image.

Ans: Layers

14. The 3-D stage that specifies the textures applied to the model's surface is known as _____ _____.
Ans: Surface definition
15. The 3-D process through which the computer creates the scenes specified by the artist is _____.

Ans: Rendering

16. _____ modeling defines the object as a pattern of triangles, quadrilaterals or other straight-edged figures.

Ans: Polygon

Multiple Choice

1. The number of colors for bitmapped graphics depends on:

A. LPI
B. Bit depth
C. Resolution
D. DPI

2. Colors produced in printed output use this process:
A. RGB
B. Linescreen
C. Subtractive
D. Additive

3. Which of the following is a computer color palette?
A. HSB
B. Web-safe
C. RGB
D. Halftone

4. The process of combining pixels of different colors to produce an unavailable color on the computer is known as:
A. Dithering
B. Quantization
C. Upsampling
D. Indexing

5. A common compressed file format for bitmapped graphics:
A. PSD
B. JPEG
C. RAW
D. MOV

6. The process of converting a drawn image into a bitmapped graphic is known as:
A. Rasterizing
B. Rendering
C. Quantization
D. Autotracing

7. Anchor points on vector images used to reshape or resize an object are called:
A. Layers
B. Handles
C. Pixels
D. Ellipses

8. Simple cubes, cones, cylinders, and other 3-D shapes supplied in a graphics program to generate new objects are called:
A. Primitives
B. Splines
C. NURBs
D. Formulas

9. A feature of modelers that can create a 3-D object by rotating a 2-D line on an axis is:
A. Extrusion
B. Metaball modeling
C. Lathing
D. Shading

10. The second stage of creating 3-D graphics is:
A. Rendering
B. Shading
C. Formula modeling
D. Surface definition

Paragraph Response

1. Identify and explain the two major types of 2-D computer graphics. Give an advantage and disadvantage of each.

2-D computer graphics are bitmapped or vector-drawn. Bitmapped images are formed from a pattern of discrete elements or "pixels." Each pixel is defined with a bit code to determine the color range of the pixel. An image with 8-bit color has fewer colors than a 16-bit or 24-bit image. The density of pixels/inch also influences the clarity or resolution of the image. Higher spatial resolutions produce greater clarity of image. The advantages of bitmapped images include accurate representation of complex contone images, full-featured photo editing, awide range of artistic effects, and precise editing to the pixel level. Disadvantages include large file sizes, loss of precise shape if resized or rotated, and device-dependent image

resolution.
Vector graphics are created from mathematically defined shapes. The image is recreated based on the commands stored in the image file. This results in much smaller image file sizes, and the image can easily be resized or rotated without distortion. Vector graphics are also device-independent, meaning the same file can be used with different devices without altering the size of the image. The disadvantages of vector images include less detailed representation of complex contone images, no photo-editing capability, and limited artistic control.

2. Identify and explain the four stages of producing 3-D graphics.

Ans: The four stages of producing 3-D graphics are modeling, surface definition, scene composition, and rendering. During the modeling stage the developer specifies the shape of the 3-D object. The surface definition phase specifies the textures that are applied to the model such as wood, glass, or stone. At the third stage, scene composition, the artist arranges objects and includes backgrounds, environmental effects, and lighting to create the entire scene. The last stage of rendering is when the computer creates the scenes specified by the artist.