Che Ch#1

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.

Ch#2

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.

Ch#3

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.

Ch#4

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

Ans: 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.

Ans: 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.

Ch#5

1. Identify and explain the two major font technologies for computer text. Give an advantage and disadvantage of each technology.

Ans: 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.

Ans: 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.