16CS561 - MULTIMEDIA SYSTEMS

QUESTION BANK

UNIT I

PART-A

1. Define Multimedia. (Understanding)

Multimedia is defined as a Computer based Interactive Communication process that incorporates text, numeric data, record based data, graphic art, video and audio elements, animation etc. It is used for describing sophisticated systems that support moving images and audio. Eg.Personal Computer.

2. List the Characteristics of a Multimedia System (Understanding)

A Multimedia system has four basic characteristics:
Multimedia systems must be computer controlled.
Multimedia systems are integrated.
The information they handle must be represented digitally.
The interface to the final presentation of media is usually *interactive*.

3. Where multimedia system uses? (Understanding)

Multimedia is mostly used in games. Text, audio, images and animations are mostly used in computer games. The use of multimedia in games made possible to make innovative and interactive games. It is also used in movies for entertainment, especially to develop special effects in movies and animations.

4. Difference between Analog and digital. (Understanding)

Analog and digital signals are used to transmit information, usually through electric signals. In both these technologies, the information, such as any audio or video, is transformed into electric signals. The difference between analog and digital technologies is that in analog technology, information is translated into electric pulses of varying amplitude. In digital technology, translation of information is into binary format (zero or one) where each bit is representative of two distinct amplitudes.

5. Define Digitization (Understanding)

Digitization is the process of converting analog signals or information of any form into a digital format that can be understood by computer systems or electronic devices. The term is used when converting information, like text, images or voices and sounds, into binary code.

6. Define Nyquist Sampling Theorem. (Understanding)

The Nyquist Sampling Theorem states that: A band limited continuous-time signal can be sampled and perfectly reconstructed from its samples if the waveform is sampled over twice as fast as it's highest frequency component.

7. What is quantization error and how does signal to noise relate to this? (Understanding)

Quantization error is the difference between the analog signal and the closest available digital value at each sampling instant from the A/D converter. Quantization error also introduces noise, called quantization noise, to the sample signal. The higher the resolution of the A/D converter, the lower the quantization error and the smaller the quantization noise. The relationship between resolution (in bits) and quantization noise for an ideal A/D converter can be expressed as Signal to Noise (S/N) = -20*log (1/2^n) where n is the resolution of the A/D converter in bits. S/N is the signal to noise and is expressed in dB. This relationship can also be approximated as S/N = 6*n. Typical S/N ratios for ideal A/D converters are 96dB for 16 bits, 72dB for 12 bits, and 48dB for 8 bits.

8. What visual display system do? (Understanding)

An electronic visual display, informally a screen, is a display device for presentation of images, text, or video transmitted electronically, without producing a permanent record. Electronic visual displays include television sets, computer monitors, and digital signage.

9. Define Virtual reality. (Understanding)

Cyber space is made up of many thousands of geometric objects plotted in three dimensional space: the more objects and the more points that describe the objects, the higher the resolution and the more realistic our view

10. Define Multimedia programmer. (Understanding)

A multimedia programmer [is a] software engineer [who] integrates all of the multimedia elements into a seamless whole using an authoring language or programming language

11. What is the role of Interface designer? (Understanding)

The role of interface designer is to create software devices that organize the multimedia content, that lets the user to access or modify that content, and that presents the content on screen.

12. What are the works of Multimedia designer? (Understanding)

A multimedia designer often wears many hats, but most importantly he or she looks at the overall content of a project, creates a structure for the content, determines the design elements required to support that structure, and decides which media are appropriate for presenting which pieces of content.

13. What is the role of Project manager? (Understanding)

Responsible for overseeing project's timeline and resources, finances, and priorities. Facilitating communication and documentation-"Budgets, schedules, creative sessions, time sheets, illness, invoices, team dynamics.

14. Give the applications of Multimedia.

Document Imaging, Image Processing and Image Recognition Full Motion Digital Video, Applications Electronic messaging Entertainment, Corporate Communications

15. What are the data elements of MM?

Facsimile
Document Images
Photographic
Images
Geographic Information System Maps
(GIS) Voice Commands and Voice
Synthesis Audio Messages
Video Messages
Full motion stored and Live
Video Holographic Images
Fractals

16. State the resolution of Facsimile, Document Images and Photographic Images?

Facsimile-100 to 200 dpi
Document images – 300 dpi (dots/pixels per
inch) Photographic images – 600 dpi

17. What is the compression technique used in Facsimile and Document Images?

Facsimile - CCITT Group3
Document Images - CCITT Group4

18. What are the applications of Photographic Images?

Photographic images are used in Imaging Systems that are used for identification such as Security Badges
Fingerprint Cards
Photo Identification Systems
Bank Signature Cards
Patient Medical Histories

19. What is the use of Document Images?

It is used for storing business documents that must be retained for long periods of time and accessed by large number of people. It removes the need for making several copies for storage or distribution.

20. Explain about GIS Systems.

GIS means Geographic Information System Maps. It is used for natural resource and wild life management and urban planning.

21. What are the two technologies used for storage and display of GIS systems?

Raster Storage
Raster Image (Raster Image has basic color map, vector overlay and text display)

22. Explain about Voice Synthesis.

This approach breaks down the message completely to a canonical form based on phonetics. It is used for presenting the results of an action to the user in a synthesized voice. It is used in Patient Monitoring System in a Surgical Theatre.

23. What is Isochronous Playback?

Isochronous playback is defined as a playback at a constant rate. Audio and Video systems require isochronous playback.

24. Explain about Full motion and live video.

Full motion video refers to prestored video clip. i.e., video stored in CD

Eg: games, courseware, training manuals, MM online manuals etc Live video refers to live telecast.

It is live and must be processed while the camera is capturing it i.e., Instant occurring is transferred at the same time.

Eg: Live Cricket Show (in television)

25. Explain the terms Holography and Hologram.

Holography is defined as the means of creating a unique photographic image without the use of lens. The photographic recording of the image is called a Hologram.

26. State the use of Holographic images.

It is used in design and manufacturing tasks. Holographs on credit cards are used to ensure authenticity.

27. State the properties of Holographic images.

Holographic images are Not clear diagrams 3-dimensional can also be recorded on materials other than photographic plates Records intensity of light and phase created by coherent light using a laser beam

28. Define Fractals.

Fractals are regular objects with a high degree of irregular shapes. It is a lossy Compression technique but it doesn't change the shape of the image. Fractals are decompressed images that result from a compression format

29. Explain Fractal Compression.

Fractal Compression is based on image content i.e., it is based on similarity of patterns within an image. The steps in Fractal compression are

A digitized image is broken into segments

The individual segments are checked against a library of fractals

The library contains a compact set of numbers called iterated function system codes.

These system codes will reproduce the corresponding fractal

30. State the applications of Document Imaging.

Document Imaging is used in organizations such as

- Insurance agencies
- Law offices
- Country and State Governments

Federal Government

Department of Defence (DOD)

31. Define Compression Efficiency.

Compression Efficiency is defined as the ratio in bytes of an uncompressed image to the same image after compression.

32. What is Image Processing?

Image Processing refers to processing a digital image using a digital computer.

An image processing system will alter the contents of the image.

It involves Image Recognition, Image Enhancement, Image Synthesis and Image Reconstruction.

33. Explain Image Calibration.

The overall image density is calibrated. In Image calibration the image pixels are adjusted to a predefined level.

34. What is Grayscale Normalization?

The overall grayscale of an image or picture is evaluated to determine if it is skewed in one direction and if it needs correction.

35. What is Frame Averaging?

The intensity level of the frame is averaged to overcome the effects of very dark or very light areas by adjusting the middle tones.

36. What is Image Animation?

Images are displayed sequentially at controlled display speeds to provide image animation. Image Animation is the basic concept of displaying successive images at short intervals to give the perception of motion.

Image Animation is a technology developed by Walt Disney and brought to every home in the form of cartoons.

37. How Image Annotation is done?

Image Annotation can be performed in two ways

•as a text file stored along the image.

•as a small image stored with the original image.

PART B

1. Discuss about Multimedia systems usage in this modern world. Give the advantage and disadvantage of it's usage. **(Understanding)**
2. While frame a multimedia system what are the characteristics should be followed and how it is achieved, discuss it in detail? **(Understanding)**
3. How Analog and Digital representation of data or files are used and managed in multimedia system? **(Understanding)**
4. Describe and discuss the role of Nyquist's Sampling Theorem in multimedia systems.**(Analyze)**
5. When Quantization error is achieved in multimedia system and how it is rectify? Discuss in detail. **(Analyze)**
6. Discuss the Visual Display Systems in details **(Understanding)**
7. Derive equations and explain Bresenham's Line Drawing algorithm with an example. **(create)**
8. Explain DDA Line Drawing Algorithm with an example in detail. **(create)**
9. Derive equations and explain Midpoint Circle generation algorithm with an example. **(create)**
10. Write down and explain the midpoint circle drawing algorithm by deriving its decision parameter. Also calculate the pixel locations of a circle having center at (2, 3) and radius 10 units. **(create)**
11. Using Bresenham's line drawing algorithm , find out which pixel would be turned on for the line with end points (4,4) to (12,9) **(create)**

UNIT II

PART A

1. What is text in computer ?(Understanding)

In information technology, text is a human-readable sequence of character s and the words they form that can be encoded into computer-readable formats such as ASCII

2. What is Unicode Standard? (Understanding)

The Unicode Standard is a character coding system designed to support the worldwide interchange, processing, and display of the written texts of the diverse languages and technical disciplines of the modern world.

3. How does text compression work? (Remembering)

In signal processing, data compression, source coding, or bit-rate reduction involves encoding information using fewer bits than the original representation. Compression can be either lossy or lossless. Lossless compression reduces bits by identifying and eliminating statistical redundancy.

4. List the Multimedia Formats. (Understanding)

Multimedia Formats. Multimedia elements (like audio or video) are stored in media files. The most common way to discover the type of a file, is to look at the file extension. Multimedia files have formats and different extensions like: .swf, .wav, .mp3, .mp4, .mpg, .wmv, and .avi.

5. Define Image processing. (Understanding)

Image processing is a method to perform some operations on an image, in order to get an enhanced image or to extract some useful information from it. It is a type of signal processing in which input is an image and output may be image or characteristics/features associated with that image.

6. What is Acoustics role in audio? (Understanding)

The properties or qualities of a room or building that determine how sound is transmitted in it.

7. Sound waves, Define the term. (Understanding)

In physics, sound is a vibration that typically propagates as an audible wave of pressure, through a transmission medium such as a gas, liquid or solid. ... Sound waves above 20 kHz are known as ultrasound and is not perceptible by humans. Sound waves below 20 Hz are known as infrasound.

8. Types of sound (Understanding)

WAV, MP3, MIDI Musical Instrument Digital Interface, karaoke

9. Properties of sound (Understanding)

The basic properties of sound are: pitch, loudness and tone. Figure 10.2: Pitch and loudness of sound. Sound B has a lower pitch (lower frequency) than Sound A and is softer (smaller amplitude) than Sound C. The frequency of a sound wave is what your ear understands as pitch.

10. Digital audio broadcasting (Understanding)

Digital audio broadcasting (DAB), also known as digital radio and high-definition radio, is audio broadcasting in which analog audio is converted into a digital signal and transmitted on an assigned channel in the AM or (more usually) FM frequency range.

11. List out the Video File Formats (Understanding)

AVI (Audio Video Interleave) Developed by Microsoft and introduced to the public in November 1992 as part of its Video for Windows technology, the AVI format is one of the oldest video formats. ...
FLV (Flash Video Format) ...
WMV (Windows Media Video) ...
MOV (Apple QuickTime Movie) ...
MP4 (Moving Pictures Expert Group 4)

12. What are video editing concepts? (Understanding)

Multimedia editing is a broad term that covers the creation and manipulation of digital audio-visual files such as image files, audio files and video files. It can also include elements such as animation and graphics, but for the purpose of our discussion we'll only be focussing on the first three.

13. What are the various representation schemes used in three dimensional objects? (Remembering)

Boundary representation (B-res) – describe the 3 dimensional object as a set of surfaces that separate the object interior from the environment. Space-portioning representation – describe interior properties, by partitioning the spatial region containing an object into a set of small, no overlapping, contiguous solids.

14. What is Polygon mesh? (Understanding)

Polygon mesh is a method to represent the polygon, when the object surfaces are tiled, it is more convenient tospecify the surface facets with a mesh function. The various meshes are

Triangle strip – (n-2) connected triangles
Quadrilateral mesh – generates (n-1)(m-1) Quadrilateral

15. Define B-Spline curve. (Remembering)

A B-Spline curve is a set of piecewise (usually cubic) polynomial segments that pass close to a set of control points. However the curve does not pass through these control points, it only passes close to them.

16. What is a spline? (Understanding)

To produce a smooth curve through a designed set of points, a flexible strip called spline is used. Such a spline curve can be mathematically described with a piecewise cubic polynomial function whose first and second derivatives are continuous across various curve section.

17. What is the use of control points? (Remembering)

Spline curve can be specified by giving a set of coordinate positions called control points, which indicates the general shape of the curve, can specify spline curve.

18. What are the different ways of specifying spline curve? (Understanding)

Using a set of boundary conditions that are imposed on the spline.

Using the state matrix that characteristics the spline

Using a set of blending functions that calculate the positions along the curve path by specifying combination of geometric constraints on the curve.

19. What are the important properties of Bezier Curve? (Remembering)

- It always passes through the first and last control points
- The curve lies entirely within the convex half formed by four control points.

20. Differentiate between interpolation spline and approximation spline. (Understanding)

When the spline curve passes through all the control points then it is called interpolate. When the curve is not passing through all the control points then that curve is called approximation spline.

21. What is a Blobby object? (Understanding)

Some objects do not maintain a fixed shape, but change their surface characteristics in certain motions or when in proximity to other objects. That is known as blobby objects. Example – molecular structures, water droplets.

22. Define Octrees. (Understanding)

Hierarchical tree structures called octrees, are used to represent solid objects in some graphics systems. Medical imaging and other applications that require displays of object cross sections commonly use octree representation.

23. Define Projection. (Understanding)

The process of displaying 3D into a 2D display unit is known as projection. The projection transforms 3D objects into a 2D projection plane. The process of converting the description of objects from world coordinates to viewing coordinates is known as projection.

24. What do you mean by view plane? (Understanding)

A view plane is nothing but the film plane in camera which is positioned and oriented for a particular shot of the scene.

25. What is view-plane normal vector? (Understanding)

This normal vector is the direction perpendicular to the view plane.

PART B

1. Discuss about text format and its compression methods in details. (Understanding)
2. How Image processing is done under multimedia systems. (Analyze)
3. Explain in details about the Types and Properties of Sounds. (Remembering)
4. Describe the technique Digital Audio Broadcasting in detail. (Remembering)
5. With suitable diagram explain video file format and editing concepts in brief. (Remembering)
6. Explain rotation. Rotate a triangle[(4,6),(2,2),(6,2)] about the vertex (4,6) by 180 degrees CCW and find the new vertices. (Create)
7. Explain Cohen-Sutherland Line Clipping algorithm in detail. (Create)
8. Explain reflection and Prove reflection is equal to Rotation by 180 degrees. (Create)
9. How do you clip polygon using Sutherland-Hodgeman algorithm? Explain. (Analyze)
10. Differentiate B splines and Bezier curves with illustrations (Analyze)
11. What is boundary and spatial representation? Explain octreees and quadtrees. (Analyze)
12. Draw CIE Chromaticity diagram. Explain color models with neat diagrams (Remembering)

UNIT III
PART A

1. Define Animation. (Understanding)

Animation is the process of designing, drawing, making layouts and preparation of photographic sequences which are integrated in the multimedia and gaming products. Animation involves the exploitation and management of still images to generate the illusion of movement.

2. List the uses of animation (Understanding)

Education, Entertainment, Advertisement, Scientific visualization, Creative Arts, Gaming, and Simulations.

3. What is traditional animation?(Understanding)

Traditional animation (or classical animation, cel animation or hand-drawn animation) is an animation technique in which each frame is drawn by hand on a physical medium. The technique was the dominant form of animation in cinema until the advent of computer animation.

4. How computer based animation? (Understanding)

Computer-assisted animation and computer-generated animation are two categories of computer animation. It can be presented via film or video. The basic idea behind animation is to play back the recorded images at the rates fast enough to fool the human eye into interpreting them as continuous motion.

5. What is animation on the web? (Understanding)

This specification defines a model for synchronization and timing of changes to the presentation of a Web page. This specification also defines an application programming interface for interacting with this model and it is expected that further specifications will define declarative means for exposing these features.

6. Define 3D Animation. (Understanding)

It is the process of generating three-dimensional moving images in a digital environment. Careful manipulation of 3D models or objects is carried out within 3D software for exporting picture sequences giving them the illusion of animation or movement. However, this is completely based on the technique used for manipulating the objects.

7. What is the outcome of rendering ? (Understanding)

Rendering is the process of converting the abstract representations of geometric entities (e.g. a cube in Maya Ascii format) into the appropriate color values in a rendered image (e.g. a rendered image of a cube below).

8. What are the animation file formats? (Understanding)

Different formats for animations include animated GIFs, Dynamic HTML such as Java, Shockwave and Flash.

9. List the animation software's. (Remembering)

Adobe Flash
Adobe Director
ToonBoom Animation
Anime Studio
CelAction

PART B

1. Explain the multimedia system architecture with a neat diagram (Understanding)
2. What are the evolving technologies for multimedia system? Explain them briefly (Remembering)
3. Explain the distinctive characteristics of multimedia database. (Understanding)

4. Explain in detail about file formats. (Remembering)
5. What are the basic objects of multimedia? Explain. (Remembering)
6. Describe the principles of animation in details. (Analyze)

UNIT IV
PART A

1. Explain about Abstract images? (Understanding)

Abstract Images are not really images. They exist as real world objects or representations. They are computer generated images based on some arithmetic calculations. The examples are Fractals – Fractals are the result of computer generated algorithms it shows different patterns that can be created Kaleidoscope – Shows different patterns due to relative positions of glass beads when it is rotated

2. State the mathematical used for generating Abstract Images? (Remembering)

Discrete Functions – It results in still images that remain constant on a temporal scale
Continuous Functions – It is used to show animated images and operations such as image fading or dissolving into another image

3. What are the benefits of Multimedia Databases? (Understanding)

Significant reduction of time and space
Increased productivity Simultaneous
document access Multidimensional
information flow Reduction of time and
money Facilitation of rapid and correct
responses Documents are manageable

4. Explain about Massive Data Volumes. (Understanding)

In this storage technology only 20% of all strategic information is automated. More than 80% resides on paper or performed interactively in meetings, discussions and presentations.
Microfiche and Microfilm is used as a medium for storage of paper documents. Both have high level of mechanical failure and physical deterioration. Microfiche and Microfilm leaves a lot of noise on documents. Microfiche is a 4x6 sheet of film that holds hundreds of document pages. Microfilm is a continuous film strip that holds several thousands of document pages.

5. Give the two Mass Storage technologies. (Remembering)

The Mass storage technologies are used for storage of multimedia documents. They
are Optical disk storage systems
High speed magnetic storage

6. What is a BLOB? (Understanding)

BLOB means Binary Large Object. Relational Database has adopted a data type commonly known as BLOB. It is used for objects such as images or other binary data types.

7. What is the key limitation of Relational database in implementing MM applications? (Understanding)

The key limitation of Relational database in implementing Multimedia applications falls on two areas Relational Data model &Relational Computational model

8. What is Inheritance? (Understanding)

Inheritance is the ability to create new objects derived from existing object classes.
New classes can be created by inheriting the attributes and methods of existing classes.

10. What is Encapsulation? (Understanding)

Encapsulation is the ability to deal with software entities as units that interact in predefined and controllable manner.

11. What is Message Passing? **(Understanding)**

The process of handing off data from one component of the application to another is called Message passing. It allows objects to interact by invoking each others methods. **12.**

12. Define Extensibility. (Remembering)

Extensibility means the set of operations, structures and constraints that are available to operations are not fixed, developers can define new operations as needed to their applications.

13. Explain Association. (Remembering)

Association is the ability to define a software entity in terms of its difference from another entity.

14. What is Classification? (Remembering)

Classification is the ability to represent a single software entity with a number of data items that all have the same behavior and the same state attributes.

1**5. What are the advantages of Encapsulation? (Remembering)**

Encapsulation hides the inner functionality of each component

Provides Autonomy Allows the development of truly open systems

16. Explain about Transaction management in Multimedia. (Remembering)

Multimedia transactions are very complex. It is defined as a sequence of events that starts when a user makes a request to display, edit or print a hypermedia document. The transaction will complete when the user releases the hypermedia document. Transaction is managed by the server and it provides the storage of data.

17. What is Image Compression? (Understanding)

Image Compression is the process of reducing the size of the image by removing redundant information in a lossless or lossy manner to conserve storage space and transmission time.

18. What is the need for Compression? (Understanding)

To manage large multimedia data objects efficiently Reduce file size for storage of objects Compression eliminate redundancies in the pattern of data .

19. State the two types of Compression. (Remembering)

Lossy Compression

Lossless Compression

20. What is Lossy Compression? (Understanding)

Lossy compression causes some information to be lost. Even if some data is lost it does not affect the originality of the image. It is used for compressing audio, grayscale or color images and video objects in which absolute data accuracy is not essential. it is used in Medical Screening Systems, Video teleconferencing and Multimedia Electronic messaging systems

21. What is Lossless Compression? (Understanding)

Lossless compression preserves the exact image throughout the compression and decompression process. Lossless Compression techniques are good for text data and for repetitive images in images like binary and grayscale images.

22. What are the advantages of Compression?(Understanding)

Compressed data object

Require less disk memory space for storage

Takes less time for transmission over a network

23. State the types of Lossy Compression? (Remembering)

JPEG (Joint Photographic

Experts Group) MPEG (Moving Picture

Experts Group) Intel DVI (Digital Video
Interface)
CCITT H.261(P*64)

24. State the types of Lossless Compression? (Remembering)

Packbits Encoding CCITT Group3 1D
CCITT Group3 2D
CCITT Group 4
Lempel-Ziv and Welch Algorithm (LZW) CCITT
– International Consultative Committee for Telephone and Telegraph

25. What is A Binary Image? **(Understanding)**

Binary Images contain black and white pixels and generated when a document is scanned in a binary mode.

26. What is Cadecs? (Understanding)

Compression and decompression software or programs are called cadecs.

2**7. What is Cadence? (Understanding)**

Cadence is the term used to define the regular rise and fall in the intensity of sound. Examples are the beats in music, changes in intensity of sound as a person speaks.

28. Explain about Busy Image and Continuous-tone Images? (Remembering)

In a Busy image adjacent pixels or group of adjacent pixels change rapidly. The grayscale or color images or known as Continuous-tone images

29. What is Negative or Reverse Compression? (Remembering)

If the number of bytes is increased than the bytes in runlentgh encoding.i.e. If the number of bytes is increased than the original image during Compression then it is called Negative Compression.

30. Give some applications of compression and Decompression Techniques? (Remembering)

Facsimile Systems
Printer Systems
Document Storage and Retrieval Systems
Video Teleconferencing Systems
Electronic Multimedia Messaging
Systems Medical Screening Systems

PART B

1. Explain multimedia input and output Technologies**(Remembering)**
2. List and explain important steps and considerations in recording and editing digital audio**(Remembering)**
3. Define sampling. Explain continuous speech recognition systems using DSP. **(Remembering)**
4. Explain binary Image Compression schemes in detail **(Remembering)**
5. Explain MPEG with diagram **(Remembering)**
6. Discuss in detail the lossy compression technique JPEG. **(Analyze)**
7. Explain RIFF, TIFF, MIDI in detail. **(Remembering)**

UNIT V
PART A

1. What is workflow? (Understanding)

Workflow is the sequence of events that determine the flow and processing of data. Workflow allows business process management in a predetermined organized manner and allows the flow of information from a desktop or a system to another desktop or system.

2. What are the classifications of workflow? (Understanding)

Production workflow or Transaction based workflow

Mail enabled or Adhoc workflow Document-based
workflow
Knowledge-based
workflow Object-oriented
workflow

3. What are the classes of multimedia application classes? (Understanding)

Game systems
Multimedia Information
Repositories Interactive TV
Video and Phone conferencing & Hypermedia
Mail Messages Shared Worksp
Enterprise-wide Multipurpose Systems

4. **Explain about dedicated system? (Remembering)**

In a dedicated system the creation, storage and manipulation of multimedia objects are performed completely within the system. A dedicated system is dependent on a network or external storage management. In a dedicated system there is no communication with other systems.

5. Explain about departmental system? (Remembering)

Departmental systems use a LAN to provide shared object storage management. Here capturing of multimedia objects may be for local use or for distribution to other users in the department. It also provides some level of shared processing of multimedia objects.

6. Explain about enterprise-wide systems? (Remembering)

Enterprise-wide multipurpose systems consist of large number of LAN's and WAN's that are interconnected. It allows sharing of departmental level or enterprise level storage management. An enterprise-wide system supports a combination of dedicated local applications, departmental applications and interdepartmental applications such as e-mail and corporate information repositories.

7. Explain Virtual Reality Systems? (Remembering)

Virtual Reality systems are designed to produce the cognitive effect of feeling immersed in the environment. It is created by the computer using sensory inputs such as vision, hearing, feeling and sensation of motion.

8. **State the key design issues that provide virtual reality functionality? (Remembering)**

Human factors
Multimedia Inputs and
Outputs Virtual
Reality Modeling
Virtual Reality Design considerations

9. What are the human factors involved in Virtual reality? (Understanding)

Color, Brightness and Shading
Object Recognition
Navigation
Motion Processing
Depth Processing
Lag aces and Shared Execution Environment
Business Process Workflow Applications

10. Explain about Cable convertor? (Understanding)

A Cable convertor is a small electronic channel convertor. It is connected between a cable of satellite dish and television. It allows user to select broadcast stations. Cable convertor consists of analog demodulation and switching circuits. It can select 60 or more analog channels.

11. What is Set-top system? (Understanding)

Set-top box is the short name for the next generation of digital information processing systems. Set-top system acts as a cable converter as well as programmable interface between user and service provider. It allows users to connect a computer system to a television set.

12. State the classifications of Business systems? (Understanding)

Dedicated Systems

Departmental Systems

13. What is Depth Perception? (Understanding)

Perceiving the change in the distance of the object from the eye is called depth perception. The three important factors in depth perception are

Motion

Pictorial

Clues

Sensory

Clues

14. Explain about Pictorial Clues? (Remembering)

Pictorial Clues consist of Changes in shapes and sizes Changes in gradient of surfaces Changes in density of objects Field of vision

Change in brightness and light reflection from object surfaces

15. Define Lag? **(Understanding)**

Lag is defined as the time between the participant action and the associated application response. The design factors used to measure lag are

Location of multimedia object

server Network bandwidth

Capability of workstation to process multiple streams concurrently

16. State the approaches used for designing concurrent operation of multiple devices and user feedback? **(Remembering)**

Simulation

Loops Multiple

Processes

Concurrent

Objects

17.What is Simulation loop? (Understanding)

A set of objects such as sound clips, video clips, graphics and sensory stimuli participate in simulation. A procedure is created and timestep is allocated for each object. Each procedure is assigned a slot in the timeline for simulation. It is called loop because the main process loops around the simple logic of which the object is scheduled next. The simulation rate is bound to the display rate.

18. What are the disadvantages of Simulation loops? (Understanding)

Method of controlling the duration of a procedure

Prioritizing actions and determining when each device should be activated.

19. What are the design issues in Gesture recognition? (Understanding)

Start and end of gesture

Path recognition and velocity of movement

Combination effects of multiple related gestures

Environmental context in which the gesture was performed

20. State the User Interface design tools? (Understanding)

Media Editors

Authoring Application

Hypermedia Object Creation

Multimedia Object Locator and Browser

21. What is navigation? (Remembering)

Navigation refers to the sequence in which the application progress and objects are created, searched and used. It can be done in direct mode or browse mode.

22. State the different Metaphors used for Multimedia applications? (Remembering)

Organizer Metaphor
Telephone metaphor
Aural User Interface(AUI) VCR Metaphor

23.Explain Organizer metaphor? (Understanding)

Organizer metaphor associates the concept of embedding multimedia objects in the appointment diary or notepad. The Lotus organizer was the first to use a screen representation of office-diary type organizer.

24. What is the use of Telephone metaphor? (Understanding)

The telephone metaphor combines normal windows user interface ideas with the telephone keypad. The telephone metaphor on a computer screen allows using the computer interface as telephone keypad is used.

25. Explain AUI? (Remembering)

Aural User Interface (AUI) allows computer systems to accept speech as direct input and provide an oral response to the user actions. The real challenge in AUI systems is to create an aural desktop that substitutes voice and ear for the keyboard and display.

26. What is the use of VCR metaphor? (Understanding)

VCR metaphor is used for video playback applications. This user interface shows all functions one would find in a video camera when it is in capture mode.

27. What is Scaling? (Understanding)

Scaling allows enlarging or shrinking the whole or part of an image. Image scaling is performed after decompression. The image is scaled to fit in a user defined window.

28. What is Zooming? (Remembering)

Zooming means enlarging a digital image to see it more clearly or make it easier to alter. It allows the user to see more detail for a specific area of the image.

29. What is Rubber Banding? (Understanding)

Rubber Banding is another form of zooming. The user can use a mouse to define two corners of a rectangle. The selected area can be copied to a clipboard, cut, moved or zoomed.

30. What is Frame Interleaving? (Understanding)

Frame Interleaving defines the structure of the video file in terms of the layout of sound and video components.

31. What is 1:1 interleaving? (Understanding)

1:1 interleaving means that the storage for every video frame is followed by storage for sound component of that frame.

32. What is programmed degradation? (Understanding)

The playback control can be exercised at the time of decompression and playback. This is called programmed degradation. Programmed degradation get into effective when the client workstation is unable to keep up with the incoming data.

33. What is the use of Planar Imaging Technique? (Understanding)

Planar Imaging Technique is used in computer-aided tomography (CAT scan) systems. It displays a two-dimensional cut of X-ray images through multi-dimensional data.

34. Explain user workstation? (Remembering)

User workstation can serve as the input node for voice or video input. It can also serve as the output node for text, graphics, image, audio/voice or video.

35. What is the use of Gateway nodes? (Understanding)

The gateway node is a standard means of communication with other systems.

36. What is the use of Database server? (Understanding)

The database server supports the database requirements of the application and stores the attribute information for real-world objects in the application. Database servers are based on the UNIX OS/2 or Windows platform.

37. What is the use of Voice mail server? (Understanding)

Voice mail server is connected to a PBX (Private Branch Exchange). It is used for voice mail messages.

38. What is the use of Audio Server? (Understanding)

Audio Server manages all digitized voice and audio objects. Audio servers should be capable of maintaining isochronous playback of audio objects.

39. Explain about the Video Server? (Remembering)

Video Server manages video objects. Video servers should be capable of maintaining constant playback speed.

40. What is the use of Audio/Video Duplication? (Understanding)

Audio/Video Duplication node allows users to create audio or videotapes for transportation of multimedia documents.

41. What is the use of Duplication station? (Understanding)

Duplication station is provides specialized high speed duplication equipment such as diskettes, CD-ROM's, Recordable CD's, Optical tapes etc.

PART B

1. Explain in detail about authoring in multimedia. **(Remembering)**
2. Explain integrated document management in multimedia**(Remembering)**
3. Discuss about Mobile messaging**(Remembering)**
4. Write short notes on Hypermedia messaging**(Remembering)**
5. Write notes on any two popular metaphors for User Interface design with examples for each of them**(Remembering)**
6. Explain major functions of distributed multimedia systems. **(Remembering)**