DEPARTMENT OF MSC SE & CT

MULTIMEDIA SYSTEMS (XCS481)

Two Mark Questions

1. What is multimedia?

The simultaneous use of data in different media forms such as voice, video, text and animation is called multimedia.

2. What is continuous media?

Continuous media are sequences of discrete data elements that are played out contiguously in time. The data are sequence of samples.

3. What is video-on-demand?

It is a two-way communication between the home and the video source, through a telephone line with sufficient bandwidth to carry a compressed video signal. The viewer uses a hand-held device control to navigate a selection menu and to choose a program. Shortly after the selection is made, the program begins playing.

4. What is movie map?

In late 1970's Andy Lippman & Robert Mohl developed Aspen project. Film shot taken from a moving vehicle through the town of Aspen Colorado were stored on video disk
.It can be accessed interactively to simulate driving through the town.

5. What is electronic book?

It is a book like user interface literally at the finger tips because of the touch screen interface and pages are turned like ordinary books and the indexing facility does the searching. This prototype has integrated sounds, data, image &video presentation.

6. Give some emerging applications in multimedia?
- ❖ Entertainment
- ❖ Home shopping
- ❖ Health Care
- ❖ Education
- ❖ Engineering
- ❖ Geographic information system(GIS)

7. What is geographic information system and state its uses?

 A specially designed system used to provide online support for facility such as building roads, power lines and railroads tracks using this system queries are sent to relational database that contains indices for maps, device controls and reports store on the networkserver.

8. What is video-telephony?

A model based on the convergence of the TV and the telephone, subscribers would dial the retailer of interest, but could connect to a live salesman or a prerecorded video showcase.

9. Write about computer based videophones?

Telephone is already incorporated into many different devices such as answering Machine, fax machine and video phones. It relies on compression and decompression of audio & video signal and a modem is connected with it.

10. What are the benefits of NYNEX?

Reduced costof delivering health
care Increased revenue opportunities
Improved patient care

11. What are the key challenges of multimedia systems?

Higher performance networking of time-based media.
On-line storage, access and interchange of multimedia
content New user interface paradigms

12. What is video-on-demand?

The video-on-Demand model takes advantage of some form of two way communication between the home and the video source.

13. What isQuality of service (QOS)?

The term quality of service is used to represent the application requirements for a given resource. This includes QOS parameters such as, minimum and maximum resolution, allowed error rate, and acceptable jitter and delay bounds.

14. What is admissibility test?

Admissibility test is done by resource manager. It determines whether a service schedule which satisfies the requirement of existing and new clients can be constructed. If so, the request can be granted.

15. What is scheduling function?

During service cycles, the resource manager maintains a scheduling function , which monitors the application's use of the resource so that unexpected overloading does not cause service deterioration for other clients.

16. What is isochronous data?

The time-sampled nature of digital video &audio is referred to as isochronous data.

17. What is intramedia synchronization?

In continuous media, if the delay and jitter is tightly bounded from the point of generation or retrieval or to point of presentation. These requirements are referred to as intramedia synchronization.

18. What is intermedia synchronization?

If several continuous media streams are presented in parallel potentially from different point of generation or retrieval, constraints on their relative timing is referred to as intermedia synchronization.

19. What is orchestration?

The management of collections of resource managers to achieve end-to-end synchronization is referred to as orchestration.

20. Define synchronization?

Synchronization is the coordinated ordering of events in time.

21. Define skew and jitter?

The variation in delay between corresponding elements of two or more synchronized media objects is referred to a skew. The variation in delay of media elements is referred to a jitter.

22. What is QOS Architecture?

The definition of QOS parameters which permit system wide orchestration is referred to as QOS architecture.

23. What is connection oriented service?

In connection oriented service, the QOS parameters required by the network service user are specifies in the request of connection. The network service provider determines whether the requested service parameters can be provided. If so, the request is forwarded otherwise the request is rejected.

24. What is media device control?

It is a combination of toolkit functions, programming abstraction and services which provide application programs access to multimedia peripheral equipment.

25. What is multi-service network?

Network for distributed multimedia systems must support a wide range of traffic requirements, such networks is called as multi-service network

26. List a few public switched network?

- ❖ ISDN (Integrated Service Digital Network)
- ❖ BISDN (Broadband Integrated Service Digital Network)

27. Define Audio?

Audio is defined as a disturbance in air pressure that reaches the human ear drum in terms of frequency, amplitude, time and other parameters.

28. What is formant?

It is a frequency region in which the amplitude of the spectral components are significantly raisedor lowered.

29. What is phase?

Two waves in the same waveform are said to be in phase,if they start in the same point and move in the same direction.

30. Define Sampling?

Sampling is the process of examining a signal at some point of time. Measurement can be taken at any point in time.

31. Define Nyquist frequency?

Sampling usually happens at equally separated intervals at a rate called as sampling frequency. The highest frequency that can be handled is often called Nyquist frequency.

32. DefineQuantization Noise?

Digital signal is defined only at the time where vertical bars occurs. The difference between a quantized representation and an original analog signal is called as quantization noise.

33. What is Quantization?

Quantization is theprocess of determining the signal's value to some arbitrary degree of accuracy.

34. Define Delta Modulation?

Delta modulation is to encode not onlythe value of each sample but also, encoding the difference between one sample and the next.

35. Define subband coding?

The signals are broken into bands which can be transmitted as a group at lower data rates than required for the original signal.

36. What are the contents of an Audio Frame?

- ❖ Header
- ❖ Optional bitsfor CRC(Cyclic Redundancy Check)
- ❖ Audio data
- ❖ Optional Ancillary data.

37. Name the different modes of operation associated with MPEG?

- ❖ Single mode
- ❖ Dual mode
- ❖ Stereo mode
- ❖ Joint Stereo mode.

38. Define Sampler?

It is a synthesizer that uses stored sounds. Sounds are recorded by the musician and stored in the synthesizer. Some samplers only play stored sounds others allow the user to record new sounds.

39. Define sythesis technique?

It is an algorithm for generating the digital samples which when played through appropriate conversion h/w and loud speakers sound more or less like the desired musical sounds.

40. Differentiate Absolute time and Delta time?

Absolute time is the time elapsedsince the beginning of composition is represented.
Delta time is the time elapsed since the previous event is recorded.

41. What is the use of text-to-speech system?

It is a system which converts the text symbols to a parameter stream representing sounds. The sounds are concatenated and then the higher-level elements of the speech such as prosody, overall emphasis and stops are added.

42. Define Transducers?

Most things in nature are analog . For television, we must convert the images and sounds into electrical signals. This is done by a sensor called as Transducers.

43. Define Raster?

The conversion of a 2-dimensional image into a 1-dimensional signal is accomplished by scanning that image in an orderly pattern called as raster.

44. Define Frame?

The signal from a complete scan of the image is a sequence of line signals separated by horizontal blanking intervals. This setof scanning lines is called a frame.

45. Define Aspect Ratio?

It is the ratio of the length of the scanning line horizontally on the image to the distance covered vertically on the image.

46. Define Sync?

The electrical signal sent to the monitor must contain some additional information to ensure that the monitor scanning will be in synchronization with the sensor scanning. This information is called as sync information.

47. Define Resolution?

It is the ability of the television to reproduce the fine detail on the scene. It is expressed both horizontally and vertically.

48. Define Interlace?

Interlace in a television system means that more than one vertical scan is used to reproduce a complete frame.

49. Define Subtractive color mixing?

The three basic colors (red, blue and green) are used to create all the possible colors by mixing themand painting on a white paper. This process is called as a subtractive color missing.

50. Define Speech Recognition?

A speech recognition system starts by breaking the speech down into a parameter representation. The first step is to identify the speech segments in time. The speech signal is

parameterized as the output of a bank of bandpass filters, which results in individual frames of data.

51. Define signal-to-noise ratio?

S/N ratio is defined as the ratio between the peak-to-peak signal and the rms (root-mean-square) value of any superimposed noise.

52. Define compression?

Compression is defined as the process of reducing the amount of data needed to reproduce the image or video. It saves storage space and increases access speed.

53. How will you evaluate a compression system?

Compression system gets evaluated based on three parameters:
- ❖ Amount or degree of compression.
- ❖ Image Quality
- ❖ Speed of compression or decompression.

53. What is compression Ratio?

It is the ratio between the input data to the output data.

55. How iscompression classified?

It is classified into two types:
- ❖ Lossy compression
- ❖ Lossless compression

56. Define Redundancy?

Redundancy in a digital image occurs when the same information is transmitted more than once. There are two type of redundancy namely, spatial redundancy and temporal redundancy.

57. What is special redundancy?

When a scene or part of the scene contains predominantly vertically oriented objects, there is a possibility that two adjacent lines will be partially or completely the same, causing redundancy between lines. Such types of line and pixel redundancy are called special redundancy.

58. What is Temporal Redundancy?

When a scene is stationary or only slightly moving, there is a possibility of redundancy between frames of a motion sequence. (ie.,) the adjacent frames in time are similar. This kind of redundancy is called temporal redundancy.

59. Differentiate lossy and lossless compression?

In lossy compression there will be some change in the picture quality. Lossless compression reproduces the same image after decompression with no change.

60. Define Truncation?

        Truncation is a means of reducing the data through arbitrary lowering of the bits per pixel. Truncation is done by throwing away some of the least significant bits for every pixel.

61. Name any three simple compression techniques ?
- ❖ Truncation
- ❖ Color Look up table(CLUT) approach
- ❖ Run-lengthcoding.

62. Write about Run length coding?

        It is a technique where blocks of repeated pixels are replaced with a single value and a count of how many time to repeat that value. It works well in images with more solid color areas. (eg:-) Cartoons

63. Define Differential pulse code modulation?

        In this method we compare the adjacent pixels and transmit only the difference between them. In decompression the difference information is used to modify the previous pixel to get the new pixel.

64. Define Transform?

        A transform is a process that converts a bundle of data into an alternative form which is more convenient for some purpose.

65. Write about Statistical coding?

        It is based on the statistical distribution of the pixel values of an image or the statistics of the data. Some data values will occur more frequently and code them using fewer bits of data.

66. Define Motion Compensation?

        In motion video there is a redundancy between adjacent frames, a motion video compression can exploit this redundancy. Techniques for dealing with this are prediction and interpolation or a special technique called motion compensation.

67. Define symmetric compression or decompression System?

        A symmetric compression/decompression System uses the same hardware for both compression and decompressionperformed at the same speedand is highly expensive.

68. What are the four modes of operation in JPEG?
- ❖ Sequential encoding
- ❖ Progressive encoding
- ❖ Lossless encoding
- ❖ Hierarchical encoding.

69. What are the different types of pictures in MPEG?
- ❖ I picture(Intracoded picture)
- ❖ P picture(Predictive picture)

- ❖ B picture(Interpolated picture)
- ❖ D picture(Special format)

70. What are the different types of layers in MPEG?
- ❖ Sequence layer
- ❖ Group of Pictures layer
- ❖ Picture layer
- ❖ Slicelayer
- ❖ Macroblock layer
- ❖ Block layer.

71. Differentiate persistent and non-persistent data object?
Persistent data object is one that exist for the duration of the application whereas non-persistent data object iscreated dynamically and discarded when not needed.

72. Differentiate Time instant and Time interval?
Time Instant is a zero length moment in time.
Time Interval is defined by two time instances and is described by two end points.

73. List down the Temporal access control operations?
- ❖ Reverse
- ❖ Fast Forward
- ❖ Fast Backward
- ❖ Random Access
- ❖ Looping
- ❖ Pseudo-sequential access.

74. Define Interrupt latency?
Interrupt latency is the time taken for servicing the interrupt.

75. Define Data Utilization?
Data utilization is the ratio of the actual presentation rate to the available delivery rate of a sequence of data.

76. Define Microkernel?
A microkernel is an OS kernel which is only responsible for manipulating low level system resources and is independent from any specific user level computational paradigm.

77. What are the limitations in workstation OS?
- ❖ Lack of real-time services
- ❖ Current systemsdo not provide any overload prevention methods.
- ❖ No mechanism to maintain a specified QOS level
- ❖ Programs are slowed down.

78. Define Continuous Mediaapplication?

Incorporating digital video and audio into the application is called as continuous media application.

79. List down the real-time scheduling policies?
- ❖ Fixed Preemptive (FP)
- ❖ Rate Monotonic (RM)
- ❖ Earliest Deadline First (EDF)

80. Define DOMF?

Distributed Object Management Facility is an object oriented mechanism by which application, export functionality and data for use by other application.

81. What are the three layers available in a Distributed Media Control System?
- ❖ LMC (Logical Media Control) Layer
- ❖ MCC (Media Connectivity Control) Layer
- ❖ VMC (Virtual Media Control) layer.

82. Write down the features of Distributed Media Control System?
- ❖ Support for hybrid media(analog and digital)
- ❖ Routing layer for providing circuit-switch for the audio-video networks.
- ❖ Connection management layer for conferencing application.
- ❖ Virtual objects which provides application level view of media objects.

83. List down the scheduling policies of CMFS?
- ❖ Greedy plan
- ❖ Static policy
- ❖ Cyclic plan

84. Write about AthenaMuse?
- ❖ Developed by Visual Computing Group of MIT's project Athena.
- ❖ Athena Muse can be viewed as a user interface management system (UIMS) with an integrated scripting language called EventScript.
- ❖ Provides a broad collection of paradigms from which the author or developer can select based on requirements.

85. What are the components in a Quick time file format?

The four major components are,
- ❖ System software
- ❖ File formats
- ❖ Apple compressors
- ❖ Human Interface Standards.

86. List down a few Hypermedia Document Models?
- ❖ MMV (Multimedia Viewer)
- ❖ Amsterdam Hypermedia Model
- ❖ HyTime

87. Define Temporal Coordination?

A Temporal coordinated interface is one in which time based interaction or presentation areas must be synchronized to achieve some effect.

88. Write down the Components of a Component object?
- ❖ Presentation specification
- ❖ Attributes
- ❖ Anchors
- ❖ Contents.

89. Name the different modules in HyTime?
- ❖ Base Module
- ❖ Location Address Module
- ❖ HyperlinksModule
- ❖ Measurement Module
- ❖ Scheduling Module
- ❖ RenditionModule

90. What is hyperlink?

It is an association between two or more objects defined by the user or application developers.

91. List a few computer platforms for supporting multimedia application?
- ❖ IBM PC Compatible
- ❖ Apple Macintosh
- ❖ Workstation-class computers

92. Define an Authoring system?

Authoring systems are based on the model that one or more authors will create the design with which an end user will interact. The result is a structure of elements which appears to the end user as a series of screens. Userscan interact through menus, icons, text prompts.

93. What is the use of media creation tools?
- ❖ Tools for generating the original data
- ❖ Scanning images
- ❖ Animation tools and video editing tools.

94. List a few scripting language supporting multimedia application?
- ❖ Apple's HyperTalk for HyperCard
- ❖ Macromedia's Lingo for Director
- ❖ Assymetrix OpenScript for Toolbook.

95. What are the barriers to widespread use of authoring and presentation system?
  ❖ Cost of acquisition,development and delivery of MM material:
  ❖ Difficulties with Production quality
  ❖ Enforcement of Intellectual property rights
  ❖ Cost,Availability and Ease of Use of Tools.
  ❖ Lack of Standards for Delivery and interchange
  ❖ Lack of a clear vision for MM Application.

96. Write about Tactus?

Tactus is a multimedia application toolkit which provides a continuous media player with scheduling controls for the application.

97. Define Mapping Function?

The operation of translating the position of one object toanother is called as mapping. The procedure to perform this operation is called Mapping function.

98. What are the components of a X Window system?
  ➢ X Client
      ❖ Application
      ❖ Toolkit
      ❖ Intrinsics
      ❖ X Library (servers as a protocol for communication with the X Server)
  ➢ X Server

99. Expand JPEG & MPEG?
  JPEG – Joint Photographic Expert Group
  MPEG – Motion Pictures Expert Group

100. Define the term 'artifacts'?

Artifacts are unnatural things which may appear in reproduction of a natural image by an electronic system. Artifacts are clues to something that is starting to go wrong.

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