

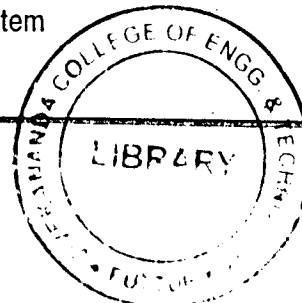
Sixth Semester B.E. Degree Examination, July/August 2003
Computer Science and Engineering/Information Science & Engg.
Multimedia Computing

Time: 3 hrs.]

Note: Answer any FIVE full questions.

1. (a) How do you classify a media with respect to different criteria? Explain any two. (9 Marks)
- (b) List and explain the main properties of multimedia system. (6 Marks)
- (c) Brief the notions of multimedia. (4 Marks)
2. (a) What is speech ? What are the requirements for speech generation? (5 Marks)
- (b) Define the following terms with respect to sound
 - i) Frequency
 - ii) Amplitude
 - iii) Sampling rate
 - iv) Quantization
 (8 Marks)
- (c) In telephone speech the sampling rate of speech signal is 8 kHz and which uses an 8 bit quantizer then find the bit rate required for telephone speech. (4 Marks)
- (d) List the components of speech recognition. (3 Marks)
3. (a) Explain with neat diagram the architecture of a raster display. (8 Marks)
- (b) Explain briefly the image recognition steps used in computer image processing. (8 Marks)
- (c) Define the following w.r.t video system.
 - i) Vertical detail and viewing distance
 - ii) Horizontal detail and picture width. (4 Marks)
4. (a) What is data compression ? How do you classify data compression? Give examples. (8 Marks)
- (b) Explain MPEG standard. What are the different standards available? (8 Marks)
- (c) List the different frames that MPEG output consists of. (4 Marks)
5. (a) Give the characteristics of real time system. (6 Marks)
- (b) What is resource ? Explain the distinguishing characteristics of a resource. (6 Marks)
- (c) Explain the following : (8 Marks)
 - i) Bus
 - ii) Processor
 - iii) primary storage
 - iv) operating system

Contd.... 2



6. (a) What is FDDI ? Briefly explain its architecture. (8 Marks)
- (b) What is ATM ? Give the characteristics of ATM. (6 Marks)
- (c) What is QoS ? List the different types of QoS negotiations. (6 Marks)
7. (a) Explain group communication architecture. (8 Marks)
- (b) Explain the requirement of transport system. (8 Marks)
- (c) What is Session Management ? List the components of the Session Management. (4 Marks)
8. Write short notes on :
- a) Distributed Queue Dual Bus (*DQDB*)
- b) *DVI*
- c) Image synthesis
- d) Speech Analysis

(4 × 5 = 20 Marks)

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NEW SCHEME

USN

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Sixth Semester B.E. Degree Examination, July/August 2005**Information Science and Engineering
Multimedia Computing**

Time: 3 hrs.]

[Max.Marks : 100

Note: Answer any FIVE full questions.
All questions carry equal marks.

- 1: (a) Define multimedia. Discuss the following with examples. (10 Marks)
- Perception media
 - Representation media
 - Presentation media
 - Transmission media
- (b) Explain the following key properties of multimedia
- Discrete media
 - Continuous media
 - Independent media
 - Compute controlled system. (8 Marks)
- (c) Mention the characteristics of data streams. (2 Marks)
2. (a) With a neat block diagram explain multimedia work station architecture. (10 Marks)
- (b) Discuss the following evolving technologies for multimedia systems. (10 Marks)
- Hyper text
 - Hyper speech
 - HDTV
 - UDTV
3. (a) What is an audio? Discuss the classification of sound based on frequency. (8 Marks)
- (b) Discuss sound perception and its psycho acoustics. (8 Marks)
- (c) State Nyquist sampling theorem. Give the standard sampling rate for CD quality audio, digital audio tape, and telephone. (4 Marks)
4. (a) Distinguish between graphics and images. (8 Marks)
- (b) Explain how images are captured in a CCD camera? (4 Marks)
- (c) Discuss the features of the following image formats (8 Marks)
- Postscript
 - GIF
 - PDF
 - BMP

Contd.... 2

5. (a) Define the following with respect to video (10 Marks)
- i) Aspect ratio ii) Viewing ratio
 - iii) flickering iv) Aliasing
- (b) Discuss JPEG base line sequential coding. (10 Marks)
6. (a) Compare and contrast TIFF file format with RIFF file format. (10 Marks)
- (b) How the data are organised in CD-ROM. Give the structure. Also explain 8 to 14 modulation. (10 Marks)
7. (a) How does work flow design for a departmental system differ from that for an enterprise wide system? Explain. (10 Marks)
- (b) Discuss the features of MIDI file format? (10 Marks)
8. Write short notes on :
- (a) MPEG
 - (b) DVD
 - (c) Content analysis
 - (d) Animation
- (4 × 5 = 20 Marks)

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NEW SCHEME

IS65

Reg. No.

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Sixth Semester B.E. Degree Examination, January/February 2006
Information Science and Engineering
Multimedia Computing

Time: 3 hrs.)

(Max.Marks : 100

Note: Answer any FIVE full questions.

1. (a) Explain how full motion video can be used in multimedia applications. (5 Marks)
- (b) Explain the term multimedia.
Categorise the following into different media: video, animation, floppy disk, cable, magnetic tape, keyboard. ASCII character, MPEG file. (5 Marks)
- (c) Explain the importances of sampling and quantization. (5 Marks)
- (d) What is the storage required to store CD - quality stereo sound of 12 minutes. (5 Marks)
2. (a) Assuming the bandwidth of a speech signal is from $50Hz - 10kHz$ derive the bit rate that is generated by the digitisation procedure assuming that Nyquist sampling rate is used with 12 bits per sample for the speech signal. (5 Marks)
- (b) List the different image formats. Mention the advantages and disadvantages of any two formats. (5 Marks)
- (c) The figure shows the grey level co-occurrence matrix. How the texture's contrast and homogeneity can be measured ?

0	0	0	2	2
0	0	0	2	2
0	0	0	3	3
1	1	1	3	3
1	1	1	3	3

- (5 Marks)
- (d) Which are the six steps in image recognition ? Explain any two steps. (5 Marks)
 3. (a) Show the scaling factor used for both U and V colour difference signal in PAL system, in terms of R, G and B colour signals. What are the benefits of representing colour in YUV scheme ? (5 Marks)
 - (b) What are the characteristic features of HDTV? (5 Marks)
 - (c) SVGA format can present 256 colours. The vertical resolution of the scene is 1024. What is the storage capacity per frame required ? (5 Marks)
 - (d) What is the need for compression ? Differentiate between lossy and lossless compression. Give two examples for each type. (5 Marks)

Contd.... 2



4. (a) A video sequence consists of 25 full frames per second. The luminance and Chrominance of each pixel are coded using three bytes. If resolution is 833×625 , calculate the data rate and storage space required to store a video clip of 1 - minute duration. (5 Marks)
- (b) The letters A, B, C, D and E are to be encoded and relative probabilities of occurrence as follows :
 $p(A) = 0.16$ $p(B) = 0.51$ $p(C) = 0.09$ $p(D) = 0.13$ $p(E) = 0.11$.
 Explain the Huffman encoding process. Give the codes used for the five characters. (5 Marks)
- (c) Explain the video encoding stage of MPEG compression technology. Explain the layering in MPEG. (10 Marks)
5. Explain :
- (a) How DVD achieves a higher capacity than CD-ROMs ? Give the structure of DVD. (8 Marks)
- (b) Explain eight to fourteen modulation in case of CDDA. (7 Marks)
- (c) Give the architecture of CDDA. (5 Marks)
6. (a) What is cut detection ? Explain cut detection based on edge extraction. (7 Marks)
- (b) Why should multimedia objects be stored in compressed form ? What are the pros and cons of storing them in uncompressed form ? (6 Marks)
- (c) Briefly explain the characteristics of multimedia database. (7 Marks)
7. Write short notes on :
- (a) Multimedia work flow (5 Marks)
- (b) Virtual reality design (5 Marks)
- (c) Home/Entertainment systems. (5 Marks)
- (d) Distributed application design issue. (5 Marks)
8. (a) Compare and contrast the TIFF file format with RIFF formats. (8 Marks)
- (b) Describe the architecture of TWAIN architecture. (8 Marks)
- (c) Explain MIDI file format. (4 Marks)

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OLD SCHEME**Sixth Semester B.E. Degree Examination, July 2007**
Information Science & Engineering
Multimedia Computing

[Max. Marks:100]

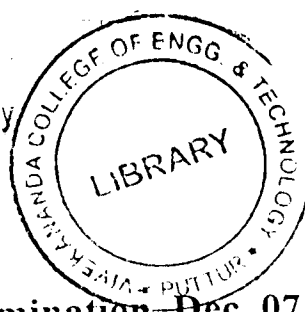
Time: 3 hrs.]

Note : Answer any FIVE full questions.

- 1 a. List out different classification of media. (05 Marks)
 b. What are the variants available in data streams (continuous data streams)? (05 Marks)
 c. Compute number of Bytes required to store 2 minutes of speech in stereo (05 Marks)

Sampling rate	5000	5000	6000	6000	20000
Quantization Bits / Sample	8	16	8	16	16
Bytes					

- d. What are the factors influence sampling rate and quantisation rate? (05 Marks)
- 2 a. Write block diagrams for speech synthesis and speech recognition processes. Highlight the role of dictionaries used in both. (07 Marks)
 b. Explain the role of MIDI devices in sound synthesis. (07 Marks)
 c. How the projection of 3-d scene takes place in 2-d image plane. Illustrate with figure. (06 Marks)
- 3 a. If the quality of image has to be improved on the binary printing device, what and how best it can be performed. Explain, what is the process called. (07 Marks)
 b. What is the need of image segmentation? Illustrate with an example how split and merge algorithm is used for image segmentation. (08 Marks)
 c. Define following:
 i) Aspect ratio. ii) Viewing ratio. iii) Resolution.
 iv) Flickering. v) Frame rate. (05 Marks)
- 4 a. Why an animation needs to be controlled? What are the techniques available to control animation? Explain three of them briefly. (08 Marks)
 b. Explain following variants of JPEG standard of image compression,
 i) Base line. ii) Expanded lossy. iii) Hierarchical. (12 Marks)
- 5 a. Explain the need of four different frame types followed in MPEG. How the sequence of execution of these frames are maintained. (06 Marks)
 b. Explain mode - 1 and mode - 2 specifications of CDROM. (10 Marks)
 c. Explain how DVD stores more data compared to CDROM. (04 Marks)
- 6 a. Explain the structure of TIFF file format header and image file directory. (08 Marks)
 b. Compare syntactic audio indicator with semantic audio indicator. (05 Marks)
 c. Compare block oriented motion vector with pixel oriented motion vector in image sequence analysis. (07 Marks)
- 7 a. What are the objectives of TWAIN? Highlight on different layers of TWAIN. (10 Marks)
 b. What is the role of document processing in multimedia based workflow systems. (10 Marks)
- 8 Write short notes on:
 a. Digital Television.
 b. MPEG-7.
 c. H.261
 d. AVI file format. (20 Marks)



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Sixth Semester B.E. Degree Examination, Dec. 07 / Jan. 08
Multimedia Computing

Time: 3 hrs.

Max. Marks:100

Note : Answer any FIVE full questions.

- 1 a. Describe the Device, System, Application and Cross domains in multimedia systems. (08 Marks)
b. Describe the perception, the representation, presentation, storage, transmission and information exchange media. (12 Marks)
- 2 a. Explain :
i) Why text processing program with incorporated images is not a multimedia application?
ii) Media independence
iii) Computer supported integration. (10 Marks)
b. What are MIDI messages? Discuss the different types of MIDI messages. (10 Marks)
- 3 a. What is the principle of speech recognition? Describe the components of speech recognition and understanding with schematic diagram. (10 Marks)
b. Describe the five steps of image recognition. (10 Marks)
- 4 a. Describe any five important measures of video images. (10 Marks)
b. With respect to computer based animation, describe
i) Input process
ii) Composition
iii) Inbetween process
iv) Changing colour. (10 Marks)
- 5 a. Describe the major steps of image data compression. Explain these steps in JPEG coding. (10 Marks)
b. Describe the I, P, B and D types of frames in MPEG systems. (10 Marks)
- 6 a. For the compact disk digital audio, describe the terms :
i) Eight to fourteen modulation ii) Frames iii) Tracks iv) Areas v) Blocks. (10 Marks)
b. Describe the mode 1 and mode 2 operations of CD-ROM. (10 Marks)
- 7 a. Describe the principle of i) CD-WO ii) CD-Sessions. (10 Marks)
b. For the MIDI devices describe i) Hardware ii) Data format iii) Reception modes (10 Marks)
- 8 a. Describe the role of i) Text and graphics editors ii) Image editors. (10 Marks)
b. Discuss the meaning and applications of
i) Hypertext and hypermedia
ii) Virtual reality. (10 Marks)

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06CS/IS831

Eighth Semester B.E. Degree Examination, May/June 2010

Mobile Computing

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. Discuss the protocol architecture of GSM. (08 Marks)
b. Explain the characteristics of different orbits of satellites. (06 Marks)
c. Compare the security features of GSM, UNTS and DECT. (06 Marks)
- 2 a. What is multipath propagation? What are the effects of it? What are the ways of migrating those effects? (08 Marks)
b. Explain the different types of digital modulation techniques. (08 Marks)
c. Compare OFDM and CDMA techniques. (04 Marks)
- 3 a. Write short notes on reverse tunneling. (04 Marks)
b. Describe the features of wired network with mobile IP network, related to routing. (08 Marks)
c. Explain the different types of encapsulation techniques in mobile IP. (08 Marks)
- 4 a. Discuss the database hoarding techniques and data caching. (10 Marks)
b. Brief about the components of client-server computing and adaptation, transactional models. (10 Marks)

PART – B

- 5 a. What is DAB? Explain the components, frame format and the protocol used by DAB. (10 Marks)
b. Explain the operation of selective tuning and indexing technique. (10 Marks)
- 6 a. Discuss synchronization and synchronization protocols. (08 Marks)
b. Brief out the synchronization language for mobile computing. (08 Marks)
c. Discuss the SMIL. (04 Marks)
- 7 a. Explain the architecture of WAP. (08 Marks)
b. Give the functions of mobile agent, application server, gateways and portals. (08 Marks)
c. Compare and contrast WAP 1.1 and WAP 2.0 (04 Marks)
- 8 a. Brief out the features and need about the XML. (06 Marks)
b. Elaborate on J2ME, java card component. (06 Marks)
c. What are the OS available for mobile devices? Brief out any two. (08 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

