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Reg. No. :

Question Paper Code : 10682

M.E./M.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023.

Elective

Information Technology

IF 4002 – MULTIMEDIA TECHNOLOGIES

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List out the various components of multimedia applications.
2. Out of three properties of sound namely: pitch, loudness, and timbre, which one needs to be encoded more accurately and why?
3. Draw the JPEG Encoder and Decoder block.
4. List out the different frames in video compression.
5. What are additional features needed for RTP protocol over TCP?
6. Distinguish between hypermedia and multimedia.
7. Give the characteristics of multimedia databases.
8. What are the resource allocation schemes of multimedia OS.
9. List the four elements of QoS in a multimedia communication network.
10. Distinguish between Immersive VR and Desktop VR.

PART B — (5 × 13 = 65 marks)

11. (a) The multimedia data types are: graphics, image, audio and video. Discuss the technical issues associated when generating, capturing, storing and transmitting all these multimedia data types.

Or

- (b) (i) What is toe-difference in approach for speech and audio processing? Sketch and explain the basic steps involved in encoding a speech and audio signal. (7)
- (ii) How are animations are created? Explain the various animation techniques in detail. (6)

12. (a) (i) Explain the H.261 encoding and decoding procedure with block diagrams. (8)
- (ii) Describe briefly about types and functions of Digital Video Interface. (5)

Or

- (b) (i) Discuss about MPEG video compression algorithm with a neat diagram. (8)
- (ii) How is motion compensation is estimated in MPEG? (5)

13. (a) (i) Describe about the functions that are performed by the RTP control protocol. (7)
- (ii) Discuss on the synchronization issues related to objects in a multimedia presentation system. (6)

Or

- (b) (i) Explain in detail Hypermedia linking and embedding with examples. (7)
- (ii) Discuss briefly about structuring of multimedia documents with example. (6)

14. (a) (i) How can you schedule the multimedia processes? Explain it. (7)
- (ii) How file systems are organized in the Multimedia based Operating System? (6)

Or

- (b) (i) What is the difficulty in handling multimedia using traditional DBMS? List and explain different characteristics of multimedia DBMS. (8)
- (ii) What data structures are used to present image and video objects in a multimedia database? Explain it. (5)

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15. (a) (i) Sketch and explain a QoS layered model for the multimedia communication systems. (7)

(ii) Describe briefly about the implementation of multimedia mail system. (6)

Or

(b) (i) What specialized input and output devices have been developed for virtual reality? Describe each in briefly. (7)

(ii) Discuss briefly about various broadcast schemes of video on demand. (6)

PART C — (1 × 15 = 15 marks)

16. (a) With neat sketch identify the five main stages associated with the baseline mode of operation JPEG and given a detailed description of the role of each stages.

Or

(b) You are a multimedia designer. You are involved in the process of designing a web site for an e-commerce web site. Explain in detail the process of inserting multimedia components into the above web site in the design phase.

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