No. of Printed Pages : **2**

Sl. No.

C6-R4 : MULTIMEDIA SYSTEMS

NOTE :

1. **Answer question 1 and any FOUR from questions 2 to 7.**
2. **Parts of the same question should be answered together and in the same sequence.**

Time : 3 Hours **Total Marks : 100**

1. (a) What are the major factors when considering storage requirements for Multimedia Systems ?

(b) Briefly describe the four basic types of data redundancy that data compression algorithms can apply to audio, image and video signals.

(c) Briefly discuss Synchronized Multimedia Integration Language (SMIL) and ways to view a SMIL presentation.

(d) Give the differentiation among Multimedia, Hypermedia and Hypertext.

(e) Give the list of some of the input and output devices that have been developed for Virtual Reality.

(f) How is a basic MIDI message structured ?

(g) Why must you consider multiple sources for objects and multiuser operations for authoring systems ? **(7x4)**

2. (a) Briefly discuss Multimedia Database (MMDB); contents of MMDB; requirements of MMDB; and issues and challenges in MMDB.

(b) What is auto-stereoscopy ? Discuss the following examples of auto-stereoscopic displays technology : parallax barrier, lenticular lenses and volumetric displays. **(9+9)**

3. (a) Discuss the different kinds of frames (I, P and B frames) that have to be processed while compressing a video using MPEG - 2 encoding.

(b) Briefly discuss video conferencing (point to point and multi point) and necessary components required for a video conferencing system. Also discuss the conferencing layers. **(9+9)**

4. (a) Briefly discuss Voice over IP (VoIP) and list out some of the VoIP protocols.

(b) Summarize the Huffman coding and show how you would use it to encode the following set of tokens :

BABACACADADABBCBABEBEDDABEEEBB

How is this message transmitted when encoded ? How many bits are needed to transfer this coded message ? What is its entropy ? **(9+9)**

5. (a) Briefly discuss MMX and highlight some of the improvements in MMX over non-MMX microprocessor.

(b) With the help of an example, describe the VRML scripting.

(c) Describe the difference between Content-based image retrieval and Concept-based image indexing. **(6+6+6)**

6. (a) Differentiate among following resource scheduling with real time considerations : Static Priority Scheduling, Earliest Deadline First and Hierarchical Start-Time Fair Scheduling.

(b) Justify the need of multimedia file systems.

(c) Discuss the components of MIDI technology. **(9+4+5)**

7. (a) What is the role of Authoring System in multimedia applications ? Discuss with an example.

(b) For each common multimedia data type discuss what common functionalities should be supported by a multimedia system. **(9+9)**

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