

**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.

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

1. (a) Calculate the uncompressed data rate, if a video signal is sampled using the following values : 25 frames per second,  $160 \times 120$  pixels, True (Full) colour depth.  
 (b) Comment on the efficiency of RLE encoding on the following token stream :  
 SAAGAAHNOOGOONEEEEANNN  
 (c) List three distinct models of colour used in Multimedia. Explain why there are a number of different colour models exploited in multimedia data formats ?  
 (d) Which scheduling algorithm is best for interactive systems ?  
 (e) What is SMIL? What can SMIL do ?  
 (f) What is virtual reality system ? How is VR different from augmented reality ?  
 (g) What were the objectives behind the introduction of VRML ? (7x4)
2. (a) What are the advantages and disadvantages of MIDI over digital audio ?  
 (b) What are the features of JPEG ? Explain the process of JPEG 2000. (9+9)
3. (a) Differentiate between MP4 and MPEG 4. What is MPEG-4 file format ?  
 (b) (i) Why do multimedia applications require real-time processing ?  
 (ii) What is *Quality of Service* (QoS) ?  
 (iii) Explain the role of LBAP model in this context. (9+9)
4. (a) What are the challenges of carrying multimedia traffic over the Internet ?  
 (b) Explain briefly the role of Real time Transport Protocols (RTP). What are its problems ?  
 (c) What is VoIP ? How it works. (6+6+6)
5. (a) What are approaches to image indexing and retrieval ?  
 (b) What is the difference Between Text-Based Image Retrieval and Content-Based Image Retrieval ?  
 (c) Explain the two categories of visual feature: Global and Local. (6+6+6)

6. (a) Write briefly on the following interface of virtual world :
- (i) Haptic input devices
  - (ii) Holographic displays
- (b) What are virtual environment models ? What is the purpose of virtual environments ? (10+8)
7. (a) What is IEEE 1394 ? How is it compared to USB ?
- (b) Discuss the Linear Predictive coder for speech compression.
- (c) What is a Video Conferencing? How Multipoint conferences are created ? (6+6+6)

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