C11-R3: MULTIMEDIA TECHNOLOGY AND VIRTUAL REALITY

NOTE:

1. **Answer question 1 and any FOUR questions from 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) Explain why QOS is important for multimedia communication?

b) Explain why DCT encoding is used in MPEG-I and MPEG-2?

c) Describe, how different input devices are used in a virtual reality system.

d) How head-mounted display is used in implementing virtual reality system?

e) When is it necessary to use compression for synthetic graphical objects?

f) Describe how can you use IEEE 1394 interface for connecting multimedia devices to your system.

g) What is EDF scheduling strategy?

(7x4)

2.

a) Distinguish between bitmapped graphics and vector graphics. Can we convert bitmapped graphics to vector graphics? Comment upon utility of these data types with reference to multimedia systems.

b) Distinguish between timeline-based and structured multimedia authoring systems.

c) What is the necessity of defining RTP and RSVP protocols? Briefly describe the features of RTP and RSVP protocols.

(6+6+6)

3.

a) Explain the steps of encoding an image with JPEG.

b) Describe the various types of images used for video encoding in MPEG.

c) Explain MP3 compression Scheme.

(6+6+6)

4.

a) Explain the real-time processing requirements.

b) Describe the network architecture for multimedia systems.

c) What is sprite coding in MPEG-4? How can sprites improve coding efficiency?

(6+6+6)

5. Explain the following:

a) Transform coding

b) USB Ports

c) Augmented Reality Systems

(6+6+6)

6.

a) Explain the head-mounted display technology.

b) What are heptic devices? What role do these device play in a virtual reality system?

c) Describe the steps involved in creating interactive 3D product using VRML.

(6+6+6)

7.

a) What is the difference between video conferencing and videophone service? Show major components of each?

b) What are the kinds of redundancy that are considered for compressing video data? How does motion compensated predictive scheme work for videoconference.

(9+9)