Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**BE – SEMESTER–VIII • EXAMINATION – SUMMER • 2014**

**Subject Code: 183201** **Date: 31-05-2014**

**Subject Name: Multimedia Computing**

**Time: 10:30 am - 01:00 pm** **Total Marks: 70**

**Instructions:**

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

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|---|---|---|---|
| **Q.1** | **(a)** | Define Multimedia signal. Briefly explain role of multimedia technology. | **07** |
| | **(b)** | Explain following terms related compression.<br>1. Coder 2. Transformer 3. Quantizer 4. Decoder 5. Inverse Transformer. | **07** |
| **Q.2** | **(a)** | What is Redundancy? Explain types of redundancy in detail. | **07** |
| | **(b)** | Explain following terms :<br>(a) Time Stamps (b) Delay Jitters (c) Compression | **07** |
| | | **OR** | |
| | **(b)** | Briefly explain challenges related with multimedia communication. | **07** |
| **Q.3** | **(a)** | Describe the principles of TIFF and its application domains. | **07** |
| | **(b)** | With the aid of a diagram, identify the five main stages associated with the JPEG and give a brief description of each stage. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Explain basic mode of operation of GIF, include in your explanation the size of the color table used, how each pixel value is sent, and how the receiver knows the image parameters used by this source. | **07** |
| | **(b)** | Assume the contents of a file that consists of 256 different words. Each composed of alphanumeric characters from the basic ASCII character set is to be sent over a network using the LZW algorithm. If the file contents start with the string:<br>This is easy as it is easy….<br>Show the entries in the dictionary of the encoder up to this point and the string of code words that are sent. | **07** |
| **Q.4** | **(a)** | Explain the principles on which perceptual coders are based and how they differ from an LPC and CELP coder. | **07** |
| | **(b)** | With aid of diagram, explain following terms related to audio compression.<br>(a) Sensitivity of ear (b) Frequency masking (c) Temporal masking | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Explain how a basic ADPCM scheme obtains improved performance over a DPCM scheme. | **07** |
| | **(b)** | With the aid of schematic diagram explain MPEG audio coders. | **07** |
| **Q.5** | **(a)** | With the aid of example frame sequences, explain the meaning of the following types of compressed frame and reason for their use:<br>(a) I-frame (b) P-frame (c) B-frame | **07** |
| | **(b)** | Explain the basic principles of MPEG-4 with schematic diagram. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | Explain the principles on which LPC coders are based. | **07** |
| | **(b)** | Explain the dynamic Huffman coding with aid of example and also compare with static Huffman coding. | **07** |

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