Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – III • EXAMINATION – WINTER • 2014

Subject code: 734104 **Date: 27-11-2014**

Subject Name: Digital Watermarking and Steganography

Time: 02:30 pm - 05:00 pm **Total Marks: 70**

Instructions:

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

Q.1	**(a)**	Define digital watermarking and explain general digital watermarking scheme.	**07**
	(b)	Define steganography and basic steganographic model.	**07**
Q.2	**(a)**	List the differences between watermarking and steganography.	**07**
	(b)	Based on characteristics of embedded watermarks, classify digital watermarking technologies and explain any one of them.	**07**
		OR	
	(b)	Classify digital watermarking based on applications. Explain one of these classifications.	**07**
Q.3	**(a)**	If one crop the image or damage occurs to watermarked image after embedding watermark in the image what may happen ? Suggest one method with suitable example to over this problem.	**06**
	(b)	In the coding approach a symbol is translated into a binary code. Compute the information rate for 32 symbols coded into 5 bit binary stream and 24 symbols coded into 5 bit binary stream. Which one is more efficient?	**08**
		OR	
Q.3	**(a)**	What are the limitations of random sequence generation? How does chaotic map overcome these limitations ?	**06**
	(b)	Explain substitution based watermarking scheme with block diagram.	**08**
Q.4	**(a)**	How does frequency domain watermarking work? Why are they more robust than spatial domain method ?	**05**
	(b)	Write down SPIHT coding algorithm.	**09**
		OR	
Q.4	**(a)**	Explain image processing attacks with details on attack by remodulation.	**05**
	(b)	Explain cryptographic and protocol attacks in brief.	**09**
Q.5	**(a)**	Write down spatial domain watermarking algorithm.	**05**
	(b)	Write down frequency domain watermarking algorithm	**09**
		OR	
Q.5	**(a)**	Explain about various types of steganography.	**05**
	(b)	Explain about IQM based steganalytic system.	**09**

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