Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER-1 (NEW) EXAMINATION – WINTER 2016

Subject Code: 2710502 **Date:06/01/2017**

Subject Name: Information Theory & Coding

Time: 2:30 pm to 5:00 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)**	Explain unique decodable codes.	**07**
	(b)	Define entropy. Explain entropy of sources and their extension using suitable example.	**07**
Q.2	**(a)**	Write short note on Huffman and shannon-fano code.	**07**
	(b)	Explain kraft's inequality	**07**
		OR	
	(b)	Explain arithmetic coding	**07**
Q.3	**(a)**	Describe Mcmillan's theorem.	**07**
	(b)	Define linear block code. Explain syndrome decoding for linear block code.	**07**
		OR	
Q.3	**(a)**	Explain hamming codes with suitable example.	**07**
	(b)	Write short note on reed-solomon code.	**07**
Q.4	**(a)**	Define instantaneous decodable codes. Explain construction of instantaneous decodable codes.	**07**
	(b)	Write short note on BCH code.	**07**
		OR	
Q.4	**(a)**	Explain viterbi decoding algorithm.	**07**
	(b)	Explain burst error detection and correction methods.	**07**
Q.5	**(a)**	Explain convolution codes.	**07**
	(b)	Explain fann's algorithm.	**07**
		OR	
Q.5	**(a)**	Explain wozencraft's sequential decoding algorithm.	**07**
	(b)	Write short note on cryptography.	**07**

****