MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)

Maisammaguda, Dhulapally,(Post Via Kompally), Secunderabad-500 100.

M.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, AUGUST - 2017

SUBJECT: <u>CODING THEORY AND TECHNIQUES</u>

Branch/Specialization: **ECE/VLSI System Design**

Time: **3 Hours**   Max. Marks: **60**

PART-A

Answer All Questions   5x4M=20M

1. Define Entropy? Explain what are joint and conditional entropy?

2. Explain the Error Detecting and correcting capability of Linear Block codes

3. Draw the encoder circuit for the (7, 4) cyclic code generated by $g(x) = 1+x+x^3$.

4. State the properties of convolutional codes.

5. Write a note on binary Fields arithmetic

PART – B

Answer any FIVE Questions   5x8M=40M

1. State and explain Shannon-Fano coding

2. Describe any two kinds of error-detection codes and explain how they detect data errors.

3. What is a cyclic code? Explain its applications broadly

4. Draw the block diagram of Trellis Coded modulation system. Discuss various considerations in the design of this modulator system.

5. Explain the basic properties of Falois Fields.

6. Write a short note on

    (i)   Weight enumerators (ii) Mac-Williams Identities.

7. Describe the convolutional decoding procedure using Viterbi decoding algorithm

8. Discuss the merits and demerits of variable length codes over fixed length codes.