PVP 12

Code: **ECMC1T3**

I M.Tech - I Semester-Regular Examinations-February 2016

ADVANCED DIGITAL COMMUNICATIONS (MICROWAVE & COMMUNICATION ENGINEERING)

Duration: 3 hours Max. Marks: 70

Answer any FIVE questions. All questions carry equal marks

1.a) Draw and explain the performance of DPSK receiver. 7 M

b) Explain the optimum demodulation and detection of CPM signals. 7 M

2. a) Draw and explain the structure of optimum receiver for channels with ISI and AWGN. 7 M

b) Draw and explain the iterative equalization and decoding scheme for turbo – coded signals. 7 M

3. a) Explain the adaptive equalization for Trellis-coded signals. 7 M

b) Explain the recursive Least Squares algorithm for adaptive channel equalization. 7 M

4. a) Draw and explain the frequency hopped spread spectrum signals. 7 M

b) Draw and explain the demodulator structures for PN spread spectrum signals. 7 M

5.a) Explain the diversity techniques for fading multipath channels. 7 M

b) Draw and explain the tapped delay line model of frequency selective channel. 7 M

6. a) Draw and explain the sub optimum linear receiver structures. 7 M

b) Explain the performance analysis of multi-user detectors and interference Cancellers. 7 M

7. a) Draw and explain the structure of convolutional codes. 7 M

b) A convolutional code is described by $g_1 = [1\ 0\ 1]$, $g_2 = [1\ 1\ 1]$, $g_3 = [1\ 1\ 1]$ 7 M

(i) Draw the encoder corresponding to this code.

(ii) Draw the state transition diagram for this code.

(iii) Draw the Trellis diagram for this code.

8. a) Explain the concept of interleaving and channel diversity. 7 M

b) Explain the general principles and signal processing aspect for OFDM. 7 M