

M. TECH.-I (ELECTRONICS V.L.S.I.) (CBCS – 2015 COURSE) :

WINTER - 2017

SUBJECT: ADVANCED DIGITAL COMMUNICATION SYSTEM

Day: **Monday**
Date: **15/01/2018**

W-2017-2780

Time: **11.00 AM TO 02.00 PM**
Max Marks. 60

N.B.

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Answer to both the sections should be written in the **SEPARATE** answer book.
-

SECTION – I

Q.1 Represent Quadrature PSK signal in the signal space and find the Euclidean distance between signal points. What is the significance of Euclidean distance? **(10)**

OR

With the necessary expressions & block diagram describe Minimum Shift Keying (MSK). What is the bandwidth requirement for MSK signal? **(10)**

Q.2 Derive an expression for the error probability of Optimum receiver. **(10)**

OR

Elaborate the error performance of PSK systems. Compare it with the FSK systems. **(10)**

Q.3 What are the properties of Reed Soloman codes? Explain in detail. **(10)**

OR

Explain in detail the interleaving applied to the compact disc digital audio systems. **(10)**

SECTION – II

Q.4 State the conditions so that the channel does not introduce frequency selective & fast fading distortion. Also state suitable mitigation techniques. **(10)**

OR

What is multi-path propagation? How can error performance be improved with the help of diversity techniques? **(10)**

P.T.O.

Q.5 With a neat Trellis diagram explain the Trellis Coded Modulation (TCM) (10)

OR

Explain the operation of Frequency Hop Minimum Frequency Shift Keying (FH – MFSK) system with suitable example. (10)

Q.6 Why MIMO systems are needed in digital communication? Explain in detail the implementation aspects of transmit receive antenna diversity (MIMO). (10)

OR

Explain the principle of OFDM. What are the design features of basic OFDM system? Briefly explain the concept of time diversity w.r.t. OFDM. (10)

*

*

*