Printed Pages: 02 **Sub Code: MTEC102**

Paper Id: 230102 **Roll No.** | | | | | | | | | | |

M. TECH.
(SEM -I) THEORY EXAMINATION 2018-19
ADVANCED DIGITAL COMMUNICATION

Time: 3 Hours ***Total Marks: 70***

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a. What is meant by syndrome of linear block code?
b. What are the advantages of convolutional codes?
c. What is meant by aliasing effect?
d. What is pseudo noise sequence?
e. What is the necessity of equalization?
f. Define spread spectrum?
g. Compare DS-SS AND FH-SS?

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

a. Explain about CDMA and multipath channels.
b. Explain about the basic elements of base band binary PAM system with neat block diagram.
c. Explain linear block codes and how to generate it?
d. State and prove Sampling theorem.
e. Why decision feedback equalization technique is known as nonlinear Equalization technique? Explain decision feedback equalizer with its block diagram.

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

a. What is spread spectrum modulation? Describe the following features of spread spectrum modulation:
i) Anti jamming ii) Ranging iii) Multiple accessing iv) Message security

b. What is frequency HOP spread spectrum? Explain the generation of slow frequency HOP spread M-ary FSK and fast frequency HOP spread M-ary FSK with appropriate diagrams.

4. Attempt any *one* part of the following: 7 x 1 = 7

a. Explain two views of the convolutional encoder in detail.
b. Explain Trellis coded modulation in detail.

5. Attempt any *one* part of the following: 7 x 1 = 7

a. Explain memory conflict problem for turbo codes.

b. Explain generation and coherent detection of BPSK signals.

6. Attempt any *one* part of the following: 7 x 1 = 7

a. Explain MFSK and also derive the probability of error.

b. What is the need of equalization? Explain working of equalization. Also classify equalization Techniques.

7. Attempt any *one* part of the following: 7 x 1 = 7

a. Represent QPSK signals in signal space and find distance between them. What is the significance of this distance.

b. Explain inter symbol interference and eye pattern.