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Paper Id:

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Sub Code: MTEC102

Roll No.

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

Time: 3 Hours

Total Marks: 70

Note: Attempt all sections equally and miss nothing that you can do suitably.

SECTION A

1. Attempt all questions 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.

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