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Question Paper Code: 51S03

M.E. DEGREE EXAMINATION, NOV 2018

First Semester

Communication Systems

15PCM103-MODULATION AND CODING TECHNIQUES

(Regulation 2015)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 3= 15 Marks)

1. Compare Linear modulation and Non linear modulation.   CO1-U

2. Define MSE in equalizers.   CO2-U

3. Define DMC.   CO3-U

4. Show the set partitioning of an 8-PSK signal set.   CO4-U

5. State the principle of turbo coding.   CO5-U

PART –B (5 x 14= 70Marks)

6. (a) Derive the power spectral density of Linear modulated signals with   CO1- App   (14)
         memory.

                              Or

    (b) Derive the power spectral density of Linearly modulated signals.   CO1- App   (14)

7. (a) What is a transversal equalizer ? Explain how can it be   CO2- U   (14)
         implemented .

                              Or

    (b) Explain the RLS algorithm with the exponentially weighted factor.   CO2-U   (14)

8. (a) Discuss in detail about Constellation-constrained AWGN channel. CO3- U (14)

Or

(b) Derive the basic formula for capacity of the band limited AWGN waveform channel with a band limited and average power limited input. CO3- U (14)

9. (a) What is set partitioning concept? Using suitable example explain the concept with respect to Trellis coded modulation. CO4 -U (14)

Or

(b) Discuss in detail about trellis coded modulation with suitable example. CO4- App (14)

10. (a) Derive Mathematical Description of the Max-Log-MAP Algorithm. CO5- Ana (14)

Or

(b) Compare turbo coding performance over Rayleigh channels & Gaussian channels. CO5- Ana (14)

PART - C (1 x 15 = 15 Marks)

11. (a) Write short notes on Sphere packing and random coding bound. CO3- U (15)

Or

(b) Write short notes on Sphere packing and random coding bound.. CO4- U (15)

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