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Reg. No. :

Question Paper Code: 53806

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

Third Semester

Information Technology

15UIT306-ANALOG AND DIGITAL COMMUNICATION

(Regulation 2015)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. The amount frequency deviation in FM signal   CO1- R

    (a) Carrier frequency   (b) Modulating Frequency

    (c) Intermediate Frequency   (d) Amplitude of the modulating signal

2. In BPSK, the phase difference of output signal and analog carrier   CO2- R
    when the binary input 0 is applied _____.

    (a) 0^0 (b) 90^0 (c) 180^0 (d) -90^0

3. The digital Modulation technique in which the step size is not fixed   CO3-R
    is

    (a) Delta Modulation   (b) Adaptive Delta modulation   (c) PCM   (d) DPCM

4. Frequency hopping involves a periodic change of transmission ___   CO4-R

    (a) Signal   (b) Frequency   (c) Phase   (d) Amplitude

5. The main purpose coding is   CO5-R

    (a) To improve bit error rate   (b) To Improve SNR

    (c) To improve selectivity   (d) To improve the Linearity.

PART – B (5 x 3= 15Marks)

6. Differentiate FM and PM.   CO1- R

7. Illustrate the principle of QPSK.   CO2-R

8. What is ISI and how it can be minimized.   CO3- R

9. Point out the properties of Pseudo-noise sequence.   CO4- R

10. Define convolution code. How are they different from linear block code?   CO5- R

PART – C (5 x 16= 80Marks)

11. (a) (i) Derive an expression for AM Wave and sketch its frequency   CO1- App   (8)
          spectrum

         (ii) Summarize the cause and effects of power distribution in AM   CO1- App   (8)
         systems.

                                    Or

    (b) (i) Explain the scheme for generation of FM modulated wave   CO1- App   (12)
         with relevant diagram

         (ii) Explain the operation of frequency analysis of angle   CO1- App   (4)
         modulation.

12. (a) Define FSK and explain about the generation and detection of   CO2-App   (16)
         FSK signals using block diagram.

                                    Or

    (b) What is carrier recovery? Discuss how carrier recovery is   CO2-Ana   (16)
         achieved by the squaring loop and costas loop circuits.

13. (a) Explain the natural sampling, with relevant waveforms. Give all   CO3-Ana   (16)
         the time domain and frequency domain equations

                                    Or

    (b) With neat diagram discuss about delta modulation, explain slope   CO3-Ana   (16)
         overload error and granular noise.

14. (a) Explain the principle of DS spread spectrum technique with a   CO4-U   (16)
         suitable diagram.

                                    Or

    (b) With neat block diagram, explain FH spread spectrum transmitter   CO4-Ana   (16)
         and receiver.

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15. (a) The generator matrix for a (6, 3) block code is given below. Find   CO5- U   (16)
       all code vectors of this code.

    G= [100 : 011]

         010 : 101

         001 : 110

                              Or

    (b) Suggest a suitable generator polynomial for a (7,4) systematic   CO5- U   (16)
        cyclic code and find code vectors for the following data words:

        (i)   1010 (ii) 1111 (iii) 0001 (iv) 1000

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