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**Question Paper Code: 50836**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

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. A carrier is simultaneously modulated by two sine waves with modulation indices of 0.3 and 0.4 ; The total modulation index  
(a) 0.4                      (b) 0.5                      (c) 0.6                      (d) 0.7
2. Non-coherently detection is not possible for  
(a) PSK                      (b) ASK                      (c) FSK                      (d) DPSK
3. Quantizing error occurs in  
(a) TDM                      (b) FDM                      (c) PCM                      (d) PWD
4. Frequency frogging is used in a carrier system to  
(a) Conserve frequencies                      (b) Reduce distortion  
(c) Reduce cross talk                      (d) None of the above
5. \_\_\_\_\_ is a measure of the uncertainty associated with a random variable.  
(a) Entropy                      (b) Source coding                      (c) channel coding                      (d) None of these

PART - B (5 x 3 = 15 Marks)

6. Define Amplitude Modulation. Mention its applications.
7. List the advantages and disadvantages of digital modulation.

8. What is granular noise?
9. Differentiate TDMA and CDMA technique.
10. State channel coding theorem.

PART - C (5 x 16 = 80 Marks)

11. (a) Derive the equation of an AM wave. Draw the amplitude modulated wave for modulation index  $m = 1$  &  $m < 1$ . (16)

Or

- (b) Explain the frequency analysis of angle modulated waves. (16)

12. (a) Explain constellation diagram and phasor representation of BPSK. (16)

Or

- (b) Draw and explain the modulator and demodulator for QPSK. (16)

13. (a) Explain the principle of PCM system with a neat block diagram. (16)

Or

- (b) Explain delta modulator transmitter and receiver with neat diagram. (16)

14. (a) Draw the block diagram of a DS spread spectrum and explain its working. (16)

Or

- (b) Discuss the technique of CDMA with a neat diagram. (16)

15. (a) Discuss about the viterbi decoding algorithm. (16)

Or

- (b) Discuss in detail about convolution codes. (16)

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