

Reg. No. :

--	--	--	--	--	--	--	--	--	--	--

Question Paper Code: 31086

B.E. / B.Tech. DEGREE EXAMINATION, OCTOBER 2014.

Third Semester

Information Technology

01UIT306 - ANALOG AND DIGITAL COMMUNICATION

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. Why is FM superior to AM in performance?
2. Draw the frequency spectrum and mention the bandwidth of AM signal.
3. Give the equation for average probability of symbol error for coherent binary PSK.
4. What are the advantages of PSK as compared to FSK?
5. Give the classification of noise.
6. What does the term catastrophic cyclic code represent?
7. What is meant by PCM?
8. How eye pattern is obtained?
9. State the balance property of random binary sequence.
10. What is the need of Multiple Access techniques? Mention the features of Code Division Multiple Access.

PART - B (5 x 16 = 80 Marks)

11. (a) Derive the expression for AM & its Power and Efficiency calculation. (16)

Or

- (b) Explain the method of generating FM signal using direct and indirect method. (16)
12. (a) (i) Explain the principle of FSK receiver. (8)
(ii) Compare BPSK and QPSK. (8)

Or

- (b) Explain the generation and detection of coherent QPSK system in detail. (16)
13. (a) Explain the digital channel model - Gilbert model of bustry channels. (16)

Or

- (b) What are the common problems associated with the channels? Explain about satellite channels and telephone channels. (16)
14. (a) (i) Describe in detail about the adaptive delta modulation system. (8)
(ii) What is signal to quantization noise? Explain. (8)

Or

- (b) (i) What is ISI? Draw the eye pattern and indicate how ISI is measured from it. (8)
(ii) A PCM system uses a uniform quantizer followed by a 7 bit binary encoder. The bit rate of the system is equal to 50×10^6 bits/sec.
(a) What is the maximum message bandwidth for which the system operates satisfactorily?
(b) Determine the output signal to quantization noise ratio when a full load sinusoidal modulating wave of frequency 1 MHz is applied to the input. (8)
15. (a) (i) Explain the salient features of wireless communication. (6)
(ii) Explain the source coding of speech for wireless communication. (10)

Or

- (b) (i) Explain the basic principle of TDMA. (4)
(ii) Mention the significance of spread spectrum modulation and describe the frequency hopping spread spectrum technique in detail. (12)