Reg. No. : | | | | | | | | | | |

Question Paper Code: 35423

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Fifth Semester

Electrical and Electronics Engineering

01UEC523 – COMMUNICATION ENGINEERING

(Common to EIE and ICE)

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Give the basic principle used in super heterodyne receivers.
2. Compare Narrowband FM and Wideband FM.
3. Define sampling theorem.
4. List the ways to reduce the slope overload distortion in DM.
5. Define entropy.
6. When will entropy function have its maximum value?
7. Give the advantages of CDMA.
8. List the advantage of spread spectrum communication.
9. Why uplink and downlink frequencies are not same?
10. What are the losses in optical fibers?

PART - B (5 x 16 = 80 Marks)

11. (a) (i) With the necessary mathematical expression, prove that the efficiency of AM system is 33.33% and bandwidth is $2f_m$. Also, analyze and suggest the techniques to improve power and bandwidth. (16)

Or

(b) (i) Illustrate the generation of SSB-SC using phase shift method. (8)

(ii) Explain the working principle of Armstrong transmitter. (8)

12. (a) Illustrate with the neat sketch working principle of PCM system. (16)

Or

(b) List out the various pulse modulation schemes and explain PAM. (16)

13. (a) (i) Apply the Shannon-Fano algorithm to a source which generates symbols x_1, x_2, x_3, x_4 with the probabilities 1/8, 1/2, 1/4 and 1/8 respectively. Calculate the code efficiency. (8)

(ii) A discrete memory less source has five symbols x_1, x_2, x_3, x_4 and x_5 with probabilities 0.4, 0.2, 0.2, 0.1 and 0.1 respectively. Construct a Huffman code for the source and calculate code efficiency. (8)

Or

(b) Briefly discuss on various error control codes with an example. (16)

14. (a) Discuss in detail about CDMA technique and mention its advantages and disadvantages. (16)

Or

(b) (i) Compare various multiple access techniques used in wireless communication. (6)

(ii) Explain in detail about space division multiple access technique. (10)

15. (a) (i) Explain about the placement of a satellite in a geostationary orbit. (8)

(ii) Write short notes on Intelsat. (8)

Or

(b) (i) Describe briefly about the three types of optical fiber configurations. (10)

(ii) Draw the block diagram of a fiber optic communication system and explain. (6)

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