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Question Paper Code : 50449

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2017

Sixth Semester

Electrical and Electronics Engineering

EC 6651 – COMMUNICATION ENGINEERING

(Common to Electronics and Instrumentation Engineering/Instrumentation and Control Engineering)
(Regulations 2013)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. Define depth of modulation in AM.
2. Compare Frequency modulation with Amplitude modulation.
3. State sampling theorem. Determine the minimum sampling frequency required for a 3.4 kHz bandwidth speech signal.
4. Draw the constellation diagram of QPSK modulation scheme.
5. Determine the entropy of the source with alphabet $S = \{s_1, s_2\}$ with probabilities 0.25, 0.75 respectively.
6. State the difference between source coding and error control coding.
7. What is meant by SDMA ?
8. Write the practical applications of FDMA.
9. Mention any two sources used in optical fiber communication.
10. Define azimuth angle.



PART – B

(5×16=80 Marks)

11. a) i) Explain the operation of diode detector in the process of demodulating AM signal. (8)
ii) Discuss the Armstrong method for the generation of FM signal. (8)
(OR)
- b) Explain the operation of super heterodyne receiver with neat block diagram. (16)
12. a) With neat block diagram explain the Delta Modulation Scheme. Discuss its disadvantages and method to overcome. (16)
(OR)
- b) Draw the transmitter and receiver block diagram of Binary Phase Shift Keying Scheme and compare its error performance with Binary Frequency Shift Keying Scheme. (16)
13. a) i) With an example explain the Huffman coding scheme and its coding efficiency. (12)
ii) Illustrate the binary symmetric channel with its transition probability. (4)
(OR)
- b) i) Represent the binary sequence 1100101 using NRZ, RZ and AMI line coding schemes and compare them in terms of bandwidth and SNR. (12)
ii) List the different types of error control codes with an example to each. (4)
14. a) Explain the TDMA and CDMA multiple access schemes with their application in wireless communication. (16)
(OR)
- b) i) List the properties of pseudo noise sequences. (6)
ii) Explain the direct sequence spread spectrum techniques with neat block diagram. (10)
15. a) Draw the block diagram of satellite communication system and derive the link equations. (16)
(OR)
- b) i) List the advantages of optical fibers. Classify the optical fibers based on the material used and profile structure. (10)
ii) Write short notes on power line communication. (6)