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Question Paper Code: 41451

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

Fifth Semester

Electronics and Communication Engineering

14UEC501 - DIGITAL COMMUNICATION

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Examples of digital communication are
 - (a) ISDN
 - (b) Modems
 - (c) Classical telephony
 - (d) All the above
2. Advantages of digital communication are
 - (a) Easy multiplexing
 - (b) Easy processing
 - (c) Reliable
 - (d) All the above
3. What is a sampling unit?
 - (a) The basic unit containing the elements of the population to be sampled
 - (b) The sampling frame
 - (c) All the individual elements of the final sample, drawn together
 - (d) The method used to collect the sample
4. Channel coding relates to area such as
 - (a) Waveform coding
 - (b) Structured sequence
 - (c) Both (a) and (b)
 - (d) None of these
5. Noise figure measures the
 - (a) Power degradation
 - (b) Noise degradation
 - (c) SNR degradation
 - (d) None of these

6. What is symbol rate packing?
 - (a) Maximum possible symbol transmission rate
 - (b) Maximum possible symbol receiving rate
 - (c) Maximum bandwidth
 - (d) Maximum ISI value allowed

7. Which modulation scheme is also called as on-off keying method?
 - (a) ASK
 - (b) FSK
 - (c) PSK
 - (d) GMSK

8. The coherent modulations techniques are
 - (a) PSK
 - (b) FSK
 - (c) ASK
 - (d) All the above

9. Pseudorandom signal _____ predicted.
 - (a) Can be
 - (b) Cannot be
 - (c) Both (a) and (b)
 - (d) None of these

10. The frequency hopping system uses _____ modulation scheme.
 - (a) FSK
 - (b) BPSK
 - (c) MFSK
 - (d) MPSK

PART - B (5 x 2 = 10 Marks)

11. Write short notes on channel classification. Give examples.
12. What is a sampling unit?
13. What is Inter Symbol Interference (ISI)?
14. Define QAM and draw its constellation diagram.
15. What is meant by frequency hop and types of hopping systems?

PART - C (5 x 16 = 80 Marks)

16. (a) Draw the block diagram of digital communication systems and explain each block in detail. (16)

Or

- (b) Classify channels. Explain the mathematical model of any two communication channels. (16)

17. (a) Explain in detail Quantization Noise and Signal to Noise Ratio. (16)

Or

(b) Explain in detail the various source coding techniques for speech signal and compare their performance. (16)

18. (a) Explain the various types of synchronization required in digital communication systems. Discuss in detail the open loop bit synchronization technique used in binary receiver. (16)

Or

(b) Explain the operation of Detection-Maximum Likelihood Detector using signal constellation diagram. (16)

19. (a) Compare the performance of various coherent non-coherent digital detection systems. (16)

Or

(b) Explain the operation of QPSK with neat diagram. (16)

20. (a) Explain in detail about direct-sequence spread spectrum with coherent binary phase-shift keying. (16)

Or

(b) Explain about the Frequency Hop-Spread Spectrum system in detail. (16)
