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Question Paper Code : X 67567

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020

Fifth Semester

Electrical and Electronics Engineering

EC 1308 A – PRINCIPLES OF COMMUNICATION ENGINEERING

(Common to Electronics and Instrumentation Engineering and
Instrumentation and Control Engineering)

(Regulations 2008)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. What is the difference between low level and high level AM transmitter ?
2. State the performance parameters of a communication receiver.
3. Write the advantages and disadvantages of FM compared to AM.
4. Distinguish between narrow band FM and wide band FM.
5. Give out a circuit that generates DPSK signal.
6. Write down the primary differences between QPSK and MSK.
7. State Sampling theorem.
8. What is equalization ?
9. What is a pseudo-noise sequence ?
10. Define CDMA.

PART – B

(5×16=80 Marks)

11. a) Generate single side band suppressed carrier signal using phase method. Draw the block diagram that depicts the operations and derive the SSB output. (16)

(OR)



- b) Discuss the following RF section characteristics :
- i) Sensitivity. (4)
 - ii) Selectivity. (4)
 - iii) Image frequency and its rejection. (4)
 - iv) Double spotting. (4)
12. a) Explain the indirect method of generation of FM. Describe the method of obtaining PM through FM. (16)
- (OR)
- b) Explain any two de-modulation techniques of FM. (16)
13. a) Explain the process of generating and detecting DPSK signal with the help of block diagram and given binary data sequence assigning starting reference bit as one 0010010011. (16)
- (OR)
- b) i) Draw transmitter and receiver block diagram of BFSK system and explain. (8)
- ii) Mention the major drawback of detecting original binary sequence from the duo binary coder output and suggest a practical means of avoiding that drawback (8)
14. a) State and derive sampling theorem for low pass signals. Also draw the spectrum of original and sampled signals. (16)
- (OR)
- b) State and derive Nyquist's criterion for distortion less baseband binary transmission. Discuss on the ideal and practical solutions of the same. (16)
15. a) i) What is a Pseudo Noise Sequence ? Explain. (6)
- ii) A spread-spectrum communication system has the following parameters :
- Information bit duration, $T_b = 4.095$ ms
- PN Chip duration, $T_c = 1$ ms,
- Find the Processing Gain and Jamming Margin. (10)
- (OR)
- b) i) Explain the Direct-Sequence Spread Spectrum Technique. (8)
- ii) Explain the Slow-Frequency Hopping and Fast-Frequency Hopping. (8)
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