

Вопросы к экзамену по учебной дисциплине
Теория электрической связи (весенний семестр)
для студентов, обучающихся на английском языке

1. Modulation. Definitions, advantages of modulation, basic kinds of modulation
2. DSB-SC Modulation. Spectrum of DSB-SC Modulation. Coherent demodulation
3. DSB-LC Modulation (or AM). Tone Modulation. Spectrum of AM signals. Envelope Detector.
4. SSB Modulation. Spectrum. Generation of SSB Signals
5. Angle modulation. Frequency and phase modulation
6. Spectrum of the angle modulated signal. Narrowband and wideband angle modulation.
7. Generation of angle modulated signals. Direct and indirect methods. Demodulation of FM (FM to AM conversion).
8. Receiver Models for linear and angle modulation. Figure of Merit. Components of modulated signals
9. Noise Performance of Linear Modulation (DSB-SC; SSB; AM).
10. Noise Performance of Angle Modulation. Calculation of FOM.
11. Uniform quantization. Quantization noise.
12. Non-uniform quantization. Companding laws.
13. Basics of the PCM system. Encoding.
14. Differential pulse code modulation.
15. Delta modulation. Linear and adaptive.
16. PCM system in noise. Hypothesis testing. Deciding with Minimum Probability of Error.
17. Error probability: False Alarm, Miss and Detection. The Likelihood Ratio Test. Neyman-Pearson Detection.
18. Detection for Signal in Gaussian Noise. Receiver Operating Characteristic.
19. Optimal Detection for complex signals (discrete) in White Gaussian Noise. Optimum detector.
20. Detection of continuous-time signals in WGN. Correlation receiver. Matched filter.
21. Comparison of Coherent and Noncoherent Detection.
22. Ideal Noncoherent Detection of a Single Pulse. Quadrature receiver
23. Comparison of Coherent and Noncoherent Detection of a Single Pulse.
24. Noise Performance of a PCM system.
25. Basics of the Coding Theory.