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Question Paper Code: 34405

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Fourth Semester

Electronics and Communication Engineering

01UEC405 – ANALOG COMMUNICATION

(Regulation 2013)

Duration: 1.15 hrs

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. If the modulation index of an AM wave is changed from 0 to 1, the transmitted power
 - (a) increases by 50%
 - (b) increases by 75%
 - (c) increases by 100%
 - (d) remains unaffected
2. In a DSB-SC system with 100% modulation, the power saving is
 - (a) 50%
 - (b) 66%
 - (c) 75%
 - (d) 100%
3. In wideband FM system, the output signal to noise ratio increases
 - (a) Linearly as the bandwidth
 - (b) as the square root of the bandwidth
 - (c) as the square of the bandwidth
 - (d) as the cube of the bandwidth
4. The signal $\cos\omega_c t + 0.5\cos\omega_m t \sin\omega_c t$ is
 - (a) FM only
 - (b) AM only
 - (c) both AM and FM
 - (d) Neither AM nor FM
5. A random variable is uniformly distributed between 3 and 6. Its variance is
 - (a) 0.75
 - (b) 0.25
 - (c) 1
 - (d) 0.5

6. Gaussian process is a
- (a) Wide sense stationary process (b) Strict sense stationary process
(c) Both of the mentioned (d) None of these
7. Threshold for detection of FM signals using discriminator is about
- (a) 100 dB (b) 30 dB (c) 200 dB (d) 1 dB
8. Equalization network is used to
- (a) eliminate non-linear distortion (b) eliminate quantization
(c) compensate transmission loss (d) none of these
9. A Pulse Amplitude Modulation signal may be generated using
- (a) impulse sampling (b) a sample and hold circuit
(c) natural sampling (d) a clipper circuit
10. Time division multiplexing is used in
- (a) Analog circuits (b) Digital circuits
(c) Modulation circuit (d) Multiplier circuits

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Explain with the suitable diagrams the generation of AM using square law modulator and degeneration of AM using envelope detector. (8)
12. Explain any one type of generation and demodulation of FM signal. (8)
13. Consider a sinusoidal signal $X(t) = A\cos(2\pi f_c t + \theta)$. Assume θ is a random variable that is uniformly distributed over the interval $[-\pi, \pi]$. Find auto correlation. (8)
14. Derive the expression of noise in DSB-SC system using coherent detection. (8)
15. Describe time division multiplexing scheme with a typical example. (8)