QUIZ(CSE,Communication Systems, Theory-UNIT 1 & 2) (4C789)

Class-C-789, Subject Teacher: Dr. Himanshu Khanna, Time Duration: 20 min.

1. An ergodic process
(1 Point)

- (●) is non-stationary for non-zero time-averages
- ( ) is always stationary
- ( ) may or may not be stationary

2. An SSB modulation scheme uses following method of generation
(1 Point)

- (●) Phase-shift method
- ( ) Coherent method
- ( ) Square-law method

3. A modulation index of more than 100 percent for an AM wave results in
(1 Point)

- ( ) oversampling
- (●) overmodulated signal

- better modulation

4. The 2nd simple moment of a random variable (r.v.) X defines the
(1 Point)

- variance of a r.v. X
- mean-square value of a r.v. X
- mean of a r.v. X

5. A probability density function for a continuous random variable is
(1 Point)

- positive & integral of cumulative distribution function
- undefined
- positive & derivative of cumulative distribution function

6. A single-tone sinusoidal modulating signal with fundamental frequency, 2000 Hz, amplitude modulates a carrier of frequency 1500 kHz. The upper & lower frequency edges are, resp., at
(1 Point)

- 1504 kHz & 1496 kHz
- 1501 kHz & 1499 kHz
- 1502 kHz & 1498 kHz

7. An impulse response of the channel is
(1 Point)

- inverse Fourier transform of frequency response of channel
- input response of channel to impulse input signal

- frequency response of channel to impulse input signal

8. 1-F(x) for random variable X, where F(x) is cumulative distribution function, defines probability
(1 Point)

- P(X
- P(X>x)
- P(x1

9. Low values of discharging time constant of envelope detector results in
(1 Point)

- d.c. signal
- spiky baseband signal
- diagonal clipping

10. A VSB-SC modulation has
(1 Point)

- a large carrier, & two sidebands containing information present
- only two sidebands present
- one full sideband & part of other sideband present

11. The system applying Hilbert Transformation has a frequency response, H(f), given by
(1 Point)

- (1/j).sgn(f)
- -j sgn(1/f)

- -(1/j).sgn(f)

12. A linear channel has a response which is
(1 Point)

- folded version of inputs
- sum of the responses from individual inputs
- delayed version of input

13. For a zero-mean random variable (r.v.) X, the variance is equal to
(1 Point)

- correlation of r.v. X
- mean of r.v. X
- mean-square value of r.v. X

14. The 2nd central moment of a random variable (r.v.) X is given as
(1 Point)

- $E\left[X^2\right] - (E\left[X\right])^2$
- $(E[X])^2$
- $E[X]$

15. A SSB-SC modulation has
(1 Point)

- a carrier & sideband present
- single sideband present
- a fully suppressed carrier & two sidebands present