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[5352]-138

S.E. (Electronics/E & TC) (II Sem.) EXAMINATION, 2018

ANALOG COMMUNICATION

(2012 PATTERN)

Time : Two Hours

Maximum Marks : 50

N.B. :— (i) Attempt Q. No. 1 or Q. No. 2, Q. No. 3 or Q. No. 4,
Q. No. 5 or Q. No. 6, Q. No. 7 or Q. No. 8.

(ii) Neat diagrams must be drawn wherever necessary.

(iii) Figures to the right indicate full marks.

(iv) Assume suitable data, if necessary.

1. (a) Explain ring modulator for DSB-SC. [6]
(b) State and compare different SSB generation methods. [6]

Or

2. (a) Explain Armstrong method of FM generation. [6]
(b) Determine the deviation ratio and worst-case bandwidth for FM signal with a maximum frequency deviation $\Delta f = 25$ kHz and maximum modulation signal $f_{m(\max)} = 12.5$ kHz. [6]

P.T.O.

3. (a) Explain with waveform and block diagram AM superheterodyne receiver. [7]
- (b) Define noise and explain various sources of noise. [6]

Or

4. (a) Describe the operation of a PLL FM demodulator. [6]
- (b) For a non-ideal amplifier and the following parameters : [7]
- Input noise power = 2×10^{-18} W
- Input signal power = 2×10^{-10} W
- Power gain = 10,00,000
- Internal noise (N_d) = 6×10^{-12} W.

Determine :

- (i) Input (S/N) ratio in dB
- (ii) Output (S/N) ration in dB
- (iii) Noise Factor (F) and Noise Figure (NF).
5. (a) Derive expression for signal-to-noise ratio in DSBSC system. [6]
- (b) Explain the types of sampling with waveforms. [6]

Or

6. (a) Write a note on angle thersholding. [6]
- (b) What is aliasing ? How is it reduced ? [6]

7. (a) Explain the performance of AM in presence of noise. [6]
(b) Draw and explain functional block diagram of PCM encoder and decoder. [7]

Or

8. (a) Compare the noise performance of DSBSC and SSBSC systems. [6]
(b) Draw and explain with waveforms generation and re-generation of PPM. [7]