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[5459]-140

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

ANALOG COMMUNICATION

(2015 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) Your answers will be valued as a whole.

(v) Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.

(vi) Assume suitable data, if necessary.

1. (a) Explain phase shift method of SSB generation. State its advantages and disadvantages. [6]

(b) Explain the need of modulation and the advantages of modulation. [4]

(c) Draw the spectrum for AMFC and AMSC. [2]

P.T.O.

Or

2. (a) Explain Armstrong method of FM generation. [6]
(b) Draw the envelope detector and explain the distortions in the same. [6]
3. (a) Define the following with neat characteristics : [6]
(i) Selectivity
(ii) Fidelity
(iii) Sensitivity.
- (b) A receiver connected to antenna whose resistance is 50Ω has an equivalent noise resistance of 30Ω . Calculate receiver's noise figure in decibels and its equivalent noise temperature. Assume $T = 290 \text{ K}$. [6]

Or

4. (a) Explain with waveform and block diagram AM superheterodyne receiver. [6]
(b) Derive Friss formula for noise factor of cascaded amplifier. [6]
5. (a) Explain performance of FM in presense of noise. [7]
(b) Draw the circuit diagram of pre-emphasis and de-emphasis with characteristic in FM. [6]

Or

6. (a) Derive expression for signal to noise ratio in DSBSC system. [6]
(b) Explain the performance of FM in presence of noise. [7]

7. (a) With the help of a block diagram explain transmitter and receiver of PCM. [6]
- (b) State and explain different types of sampling and draw the spectrum of sampled output for sampling frequency less than, equal to and greater than maximum frequency of analog signal (for any one type of sampling). [7]

Or

8. (a) State and prove sampling theorem. [6]
- (b) Draw and explain generation and regeneration of PWM and PPM. [7]