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[4857]-1048

S.E. (Electronics/E&TC) (Second Semester) EXAMINATION, 2015
ANALOG COMMUNICATION
(2012 PATTERN)

Time : Two Hours

Maximum Marks : 50

- N.B. :-** (i) Neat diagrams must be drawn wherever necessary.
(ii) Figures to the right indicate full marks.
(iii) Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.
(iv) Assume suitable data, if necessary.

1. (a) Explain phase shift method of generation of SSB-SC signals. [6]
(b) A frequency modulated signal is given by :

$$x_c(t) = 10 \cos [2\pi \times 10^8 t + 5 \sin 2\pi \times 200t]$$

Determine :

- (i) The carrier frequency
(ii) Peak frequency deviation
(iii) The modulation index. [6]

Or

2. (a) Explain the ring modulator method to generate DSB-SC signal with waveform. [6]
(b) Give comparison between FM and PM. [6]
3. (a) Explain principle of operation of envelope detector. State the conditions to avoid distortion. [6]
(b) Derive Friss formula considering only three amplifiers in cascade. [6]

P.T.O.

Or

4. (a) Explain superheterodyne receiver characteristics : [6]
(i) Sensitivity
(ii) Selectivity
(iii) Fidelity.
- (b) A low noise amplifier of 30 K equivalent noise temperature and 20dB available power gain precedes a microwave receiver which has a noise figure of 25 dB. What is the overall equivalent temperature, if the room temperature is 27°C. [6]
5. (a) Derive equation of figure of merit for noise contaminated DSB-SC system. [7]
(b) Critically compare the noise performance of AM, DSB-SC and SSB-SC system. [6]

Or

6. (a) Show that a SSB-SC system gives the same destination SNR as a base band system. [7]
(b) Explain the need of pre-emphasis and de-emphasis in the case of FM system. How is it implemented ? [6]
7. (a) Explain how a PAM signal may be generated. How can it be demodulated ? [7]
(b) State the low pass sampling theorem and briefly explain its significance. [6]

Or

8. (a) Describe with the help of neat sketches of waveforms methods of generation of PDM/PWM and PPM. [7]
(b) What is aliasing ? How can it be avoided ? [3]
(c) Draw and explain a circuit for flat top sampling. [3]