

T.E. Sem - V (REV) Extra communication circuits

Con. 5089-05.

(REVISED COURSE)

PR-7394

(3 Hours)

[Total Marks : 100

N.B. (1) Question No. 1 is compulsory.

(2) Attempt **four** out of remaining **six** questions.

1. Answer the following questions : 20
 - (a) What is noise and list different sources of noise in communication circuits ?
 - (b) Explain the application of IC LM380 as Audio power amplifier.
 - (c) Explain Amplitude demodulation using PLL.
 - (d) Explain FET Mixer with neat diagram.
2. (a) Explain Noise in active devices. 10
(b) What is intermodulation distortion ? Discuss in detail about different parameters that are related with intermodulation distortion. 10
3. (a) Explain the analysis of series RLC circuit with pole zero diagram and suggest any one application of it. 10
(b) Derive an expression for power transfer and phase distortion in case of an hybrid transformer. 10
4. (a) Explain how impedance matching and harmonic filtering is achieved in reactive network. Design a lossless coupling network that matches a $10 + 5j \Omega$ load to a 50Ω source impedance. 10
(b) Explain different methods of neutralization and feedback techniques used in wide band amplifiers. 10
5. (a) With a neat diagram, explain the basic operation of PLL. Also explain capture and lock range. 10
(b) Write a short notes on : 10
 - (1) Angle Modulation
 - (2) Frequency Demodulation.
6. (a) Explain frequency synthesis by phase lock method and list some advantages with that of direct frequency synthesizer. 10
(b) Explain direct Digital synthesis with neat diagram. 10
7. (a) Explain four diode switching type mixer and derive expression for output voltage. 10
(b) Write short notes on : 10
 - (1) Analog frequency synthesizer
 - (2) AM modulator using IC 1596.