ATKT – Dec'08

Con. 5372-08.

PRINCIPLES OF COMMUNICATION RC-b

ENGINEERING.

(3 Hours) [Total Marks : 10

N.B. : (1) Question No.1 is compulsory.
(2) Attempt in all five questions.
(3) Assume suitable data if required.

1. Answer the following :— 20
imp (a) Explain noise triangle. (FM)
(b) Compare TDM and FDM.
(c) What is tracking ? Explain. (AM)
(d) Compare PAM, PWM and PPM.

2. (a) What is modulation ? Explain grid modulation method of AM generation with neat diagram. (AM) 10
(b) The unmodulated carrier wave is having peak amplitude of 20 Volts and frequency of 500 KHz. This is modulated by a sine wave of 14 volts amplitude and 15 KHz frequency. 1(
(i) Write the expression for the modulated wave
(ii) Determine the total power and the sideband power developed across a 50 ohm resistor.
(iii) Draw the time domain waveform.
(iv) Draw the frequency spectrum of the modulated signal.
(v) Find the transmission efficiency.

3. (a) Explain the indirect method of FM generation with block diagram and also phasor diagram. 4 times 1
(b) Explain phase shift method of SSBSC generation. 3 times

4. (a) Draw the block diagram of Delta modulator and explain. What are its drawbacks and how will you over come this ?
(b) Explain the working of practical diode detector. am demod.

5. (a) How FM signal is detected using ratio detector ? Explain.
(b) Explain the following in connection with radio receivers :—
(i) Image frequency and its rejection.
(ii) Selectivity
(iii) Sensitivity
(iv) AGC.

6. (a) What is sampling ? State and prove sampling theorem.
(b) Explain different sources of noise.

7. Write short notes on :—
(a) Vestigial side band system.
(b) Quantization.
(c) Time division multiplexing.
(d) TRF receivers.