SE ETRX IV (Rev)
Basic & Analog & Digital Communication Systems

Con. 3631-11.

RK-1860

(3 Hours) **[Total Marks : 100**

N.B. : (1) Question No. **1** is **compulsory**.
(2) Attempt any **four** questions out of remaining **six** questions.

1. Answer the following :— **20**
   (a) Distinguish between : Narrow Band and Wide Band FM.
   (b) Classify and explain to various noises that affect communication.
   (c) Derive an expression for an AM signal.
   (d) Explain Time Division Multiplexing.

2. (a) Compare the following amplitude modulated systems :— **12**
   DSB-FC, DSB-SC, SSB, ISB.
   (b) Explain basic block diagram of communication system in detail. **8**

3. (a) With the help of neat block diagram explain the working of TRF Receiver. **10**
   (b) Draw the block diagram of PCM system and explaiin each block in detail. Also draw the waveforms. **10**

4. (a) Explain PAM and PWM generation with the help of block diagram and waveforms: How is PAM demodulated ? **10**
   (b) Draw the block diagram and waveforms of Adaptive Delta Modulator and explain in detail. What are the advantages of this modulator over delta Modulator ? **10**

5. (a) Explain with the help of block diagram and waveforms superheterodyne radio receiver. **10**
   (b) Sketch the circuit and phasor diagram of a phase discriminator and prove that it works as a FM demodulator. **10**

6. (a) Explain the following terms :— **10**
   (i) Signal to noise ratio
   (ii) Noise factor
   (iii) Noise figure
   (iv) Equivalent noise temperature.
   (b) Draw the following line codes :— **10**
   (i) Unipolar NRZ
   (ii) Unipolar RZ
   (iii) Polar NRZ
   (iv) Polar RZ
   (v) A. M. I. (Bipolar).

7. Write short notes on following :— **20**
   (a) Vestigial sideband
   (b) AGC in radio receiver
   (c) High level plate Modulator
   (d) Frequency division multiplexing.
