(6) TE - sem - V - CBGS - EXTC - AC

27/5/16

Q.P. Code : 31187

(3 Hours) [Total Marks : 80

N.B. : (1) Question No. **1** is **compulsory.**
(2) Attempt any **three** questions from **remaining** questions.
(3) **Assume** suitable **data** if **necessary.**

1. Solve any **four** of the following :— **20**
   (a) Why IF is selected as 455 KHz in AM ?
   (b) Distinguish between narrow band FM and wideband FM.
   (c) What are the causes of fold over distortion ? How it can be prevented ?
   (d) Explain double spotting with reference to radio receiver.
   (e) Define noise figure and signal to noise ratio.

2. (a) One input to AM modulation is 500 KHz carries with an amplitude of 20 Vp. The second input is 10 KHz modulating signal that is of sufficient amplitude to cause a change in o/p wave of ± 7·5 Vp. Determine. **10**
      (i) Upper and Lower side frequency
      (ii) Expression for modulated wave
      (iii) Draw o/p spectrum
      (iv) Modulation co-efficient and percent modulation
      (v) Total tranmitted power.
   (b) Explain practical diode detector with delayed AGC. **10**

3. (a) Explain indirect method of FM generation. **10**
   (b) Explain ratio detector in detail with suitable diagram. **10**

4. (a) Explain independent sideband technique in detail. **10**
   (b) Explain Super heterodyne radio receiver in detail with block diagram. **10**

5. (a) Explain block diagram of adaptive delta modulator with waveforms. **10**
   (b) State and prove sampling theorem for pass band signal. **10**

6. Write short notes on any **four** of the following :— **20**
   (a) PLL FM Demodulator
   (b) Quadrature Amplitude Modulation
   (c) TDM and FDM
   (d) Companding
   (e) Aliasing Error and aperture effect.
