SE - IV (CBGS) ETRX
F. of Comm. Engg

Dec 2014

Q.P. NO : 12549

(3 Hours) **[Total Marks : 80**

N.B. : (1) Question N0.**1** is **compulsory**.
(2) Attempt any **three** questions out of the remaining **five** questions.
(3) Assume suitable **data** if **required**.

1. Answer the following **(Any four):-**
   (a) Compare AM and FM. 05
   (b) In a broadcast superheterodyne receiver having no RF amplifier, the loaded Q of the antenna coupling circuit is 150. If the IF is 455kHz, calculate the image frequency and its rejection ratio at 1400kHz. 05
   (c) Explain noise triangle in FM. 05
   (d) Explain the-following terms :- 05
      (i) Signal-to-noise ratio
      (ii) Noise figure
      (iii) Noise factor
      (iv) Equivalent noise temperature.
   (e) Explain ISB transmission 05

2. (a) Explain Armstrong method of FM generation with the help of a neat block diagram and phasor diagrams. 10
   (b) Draw the block diagram of Delta modulation technique and explain each block. 10

3. (a) State sampling theorem. Explain flat-top sampling. Draw its spectrum and explain aperture effect. 10
   (b) Explain generation and demodulation of PAM, PPM and PWM with waveforms. 10

4. (a) Explain TDM and FDM. 10
   (b) Explain the following with reference to radio receivers : 10
      (i) Selectivity.
      (ii) Fidelity
      (iii) Sensitivity
      (iv) Double spotting

5. (a) Draw the schematic diagram of simplified medium- power transistor AM DSBFC modulator and explain the operation with the help of collector waveforms with no modulating signal and collector waveforms with a modulating signal. 10
   (b) Draw the block diagram of Super heterodyne radio receiver and explain the same. 10

6. Write short notes on.
   (a) ISB transmission 5
   (b) Pre-emphasis and De-emphasis 5
   (c) Companding 5
   (d) [illegible] 5
