T.E. (EXTC)
V C.B.G.S.
AC

QP Code : 3385 29105|15

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

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

1. Answer the following **(any four)** :– **20**
   (a) Classify and explain the various types of noises affecting communicaiton.
   (b) Differentiate between narrowband and wideband FM.
   (c) In AM why IF is selected 455 KHz?
   (d) What is aliasing? How it can be prevented?
   (e) Why AGC is required in radio receivers? Explain diode detector circuit with simple AGC.

2. (a) The antenna current of AM brodcast transmitter modulated to depth of modulation index 40% by an audio wae is 11A. It increase to 12A as a result of simultaneous modulation by another audio sine wave. What is modulation index due to this second wave? **5**
   (b) Compare FM and PM. **5**
   (c) Explain with neat block diagram the phase shift method for suppression of unwated sideband. **10**

3. (a) State and Prove sampling theroem for low pass band limited signals. **10**
   (b) Explain the principle and generation of indirect method of FM generation. **10**

4. (a) What are the drawbacks of delta modulation? Explain with neat block diagram working of Adaptive delta modulator. **5**
   (b) Explain how PPM is generated from PWM? **5**
   (c) Explain VSB transmission. **10**

5. (a) Explain the operation of Foster seely discriminator with the help of circuit diagram and phasor diagram. **10**
   (b) Draw a neat block diagram of super heterodyne radio receiver and explain function of each block with waveforms. **10**

6. Write short notes on (any **four**) :– **20**
   (a) Independent sideband system
   (b) FM noise triangle
   (c) μ-law and A-law companding
   (d) Double spotting
   (e) TDM and FDM