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

1. Give brief answers to any four:
   (a) What is delta modulation?
   (b) Define the terms signal to noise ratio, noise temperature and noise figure.
   (c) What is need of modulation?
   (d) State and explain sampling theorem.
   (e) Write advantages of SSB modulation.

2. (a) Explain Ring modulator.
     (b) An Am broadcast station has modulation index which is 0.75 on the average. What would be its average power saving, if it could go over to single sideband suppressed carrier transmissions, while maintaining the same signal strength in its reception area.

3. (a) Write note on Carson rule and explain working of superhetrodyne AM receiver.
     (b) Explain the Armstrong frequency modulation system with the help of block diagram.

4. (a) With respect to radio receiver, explain:
     (i) Sensitivity
     (ii) Selectivity
     (iii) Image frequency
     (iv) Double spotting
     (b) Explain superhetrodyne radio receiver.

5. (a) Compare PAM, PWM and PPM.
     (b) Explain what is meant by quantisation noise and comment on Adaptive delta modulation.

6. Write short notes on any four:
   (a) Pre-emphasis and de-emphasis
   (b) Time Division multiplexing
   (c) Pulse code modulation
   (d) Electromagnetic spectrum
   (e) AGC

MD-Con. 11583-15.