

Q.P. Code : 18453

[Time: Three Hours]

[Marks:80]

Please check whether you have got the right question paper.

- N.B:
- 1) Questions No.1 is compulsory.
 - 2) Attempt any three questions from the remaining five questions.
 - 3) Assume suitable data if required

- Q. 1** Answer any four questions from the following (20)
- a) Would it be possible to transmit one intelligent signal in the upper sideband and a different intelligent signal in the lower sideband of an AM or DSB signal? Explain.
 - b) List several sources of external noise and give a brief description of each
 - c) Why is PCM more resistant to noise?
 - d) For faithful recovery of signal comment on sampling Theorem
 - e) Comment on granular noise
- Q. 2** a) Draw the complete block diagram of the Armstrong frequency modulation system and Explain the functions of the mixers and multipliers shown. (10)
- b) Why is AGC needed in superhetrodyne receiver? Briefly explain the function of each of the blocks in the superhetrodyne receiver. (10)
- Q. 3** a) Prove that the balanced modulator produces an output consisting of sidebands only with the carrier removed (10)
- b) Calculate the percentage power saving when the carrier and one of the sideband is suppressed in an AM wave modulated to depth of a) 50% and b)100% (05)
- c) Describe Fidelity and double spotting of Radio receiver. (05)
- Q. 4** a) Define the following propagation terms:- (10)
- i) Critical frequency and Critical Angle
 - ii) Virtual Height
 - iii) MUF
 - iv) Skip Distance and skip zone
 - v) Free space path loss.
- b) Describe frequency discriminator. (10)
- Q. 5** a) Compare Analog transmission with Digital transmission and comment on Quantization process, (10)
- b) What is delta modulation? Explain in detail why adaptive delta modulation is required. (10)
- Q. 6** Write short notes on any three. (20)
- a) TDM and its application.
 - b) Noise triangle
 - c) Electromagnetic frequency spectrum.
 - d) Pre-emphasis and De-emphasis