



Q.P. Code :25244

[Time: Three Hours]

[Marks:80]

Please check whether you have got the right question paper.

- N.B:
1. Question.No.1 is compulsory.
 2. Attempt any three questions out of remaining five.
 3. Figures to the right indicate full marks.
 4. Assume suitable data if required and mention the same in answer sheet.

- Q.1** Solve any four. 20
- a) Explain the function of AFC loop in FM.
 - b) What do you mean by double spotting?
 - c) What is quantization? Explain types of quantization.
 - d) Why IF is selected as 455 KHz in AM?
 - e) Define noise figure and noise factor.
- Q.2**
- a) Draw the block diagram of phase cancellation SSB generator and explain how carrier and unwanted sidebands are suppressed? 10
 - b) An AM transmitter radiates 5 MHz carrier with 80KW power, carrier is modulated by 600HZ and 2 KHz signals. 10
 1. What will be the total modulation index if each signal modulates at 60% of modulation?
 2. Determine the transmitted power.
 3. Draw the frequency spectrum of modulated signal.
 4. What is % of power saving if one of the sideband and carrier is suppressed?
- Q.3**
- a) Explain the operation of Foster Seeley discriminator with the help of circuit diagram and phasor diagram. 10
 - b) Explain the principle and generation of indirect method of FM generation. 10
- Q.4**
- a) What are the drawbacks of delta modulation? Explain the method to overcome these drawbacks. 10
 - b) State and prove sampling theorem for band limited signal. 10
- Q.5**
- a) Explain super heterodyne radio receiver in detail with block diagram. 10
 - b) Explain the principle and working of transistor direct PM Modulator 10
- Q.6** Write short notes on: (any four) 20
- a) PLL FM demodulator
 - b) μ -law and A-law companding
 - c) Vestigial sideband w.r.t broadcast television
 - d) Frequency division duplexing (FDM)
 - e) Pre emphasis and de-emphasis circuit
 - f) Aliasing error and aperture effect
