

[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 from remaining five questions.
 3. Figures to the right indicate full marks.
 4. Assume suitable data wherever necessary.



- Q.1 a) Discuss simple AGC and delayed AGC. 05
b) Compare AM and FM. 05
c) What is noise factor and noise temperature? Derive their expressions for cascaded amplifier. 05
d) Describe ASK and FSK generator with neat diagram. 05
- Q.2 a) Draw block diagram of PPM generator and detector. Explain with neat waveforms. 10
b) Give shortcomings of delta modulator. Draw and explain adaptive delta modulator with example. 10
- Q.3 a) Explain Third method of SSB generation with block diagram. Give advantages and shortcomings. 08
b) Explain following in relation to radio receiver with example. 06
i) Double spotting
ii) Image frequency & its rejection
c) Calculate maximum deviation and bandwidth of frequency modulated signal if the modulating signal has frequency is 700 Hz and peak amplitude 3.4V. The modulation index is 60. What will be the modulation index when modulating frequency is reduced to 450 Hz and modulating voltage is increased to 4V? 06
- Q.4 a) Discuss indirect method of FM generation with neat block diagram. 10
b) Explain working of balanced modulator using FET to generate DSB-SC AM signal with mathematical analysis. Draw output waveform. Compare DSB-SC AM signal with SSB-AM signal. 10
- Q.5 a) Draw and explain block diagram of FM receiver. Discuss double tuned FM detector in detail. Give its merits and demerits. 10
b) What is multiplexing? Give types. Discuss TDM transmitter and receiver. Give multiplexing hierarchy and applications. 10
- Q.6 Give short notes on (Any four) 20
a) Companding
b) FDM
c) Ratio detector
d) Super heterodyne receiver
e) DSB-FC AM generator