

III B.Tech I Semester Supplementary Examinations, April/May 2005
COMMUNICATION ENGINEERING
(Electronics & Control Engineering)

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain the Hartley modulator for generating SSB modulated wave.
(b) Derive the expression for a VSB modulated wave containing a vestige of the lower sideband.
2. (a) A sinusoidal modulating wave of amplitude 10V, and frequency 5KHZ is applied to a frequency modulator. The frequency sensitivity of the modulator is 45Hz/V. the carrier frequency is 150KHZ. Calculate its frequency deviation and modulation index.
(b) Explain analytically how do the AM and wide-band FM differ each other.
(c) Show that the average power of FM is constant.
3. (a) Write short notes on the following:-
 - i. Harmonic generators
 - ii. transmitter power supplies
(b) Explain with suitable block diagram the various stages of a frequency modulated broadcast transmitter. Draw the block schematic of a crystal controlled frequency modulation broadcast station operating on 96.5MHZ. The modulating frequency employed cover the range 60 to 12000 HZ. and a maximum deviation of 75 KHZ is desired.
4. (a) Draw block diagram of a typical AM receiver and describe briefly function of each block.
(b) Explain the necessity for
 - i. tone and volume control
 - ii. alignment and tracking in radio receivers, what is meant by spurious response of a receiver?
5. (a) Differentiate between simple, delayed and amplified AGC and explain their action with the help of simple circuits blocks.
(b) Discuss briefly similarities and differences between FM and AM receivers.
(c) Write in detail about the limiter used in FM receiver.
6. (a) Draw the block diagram of TDM system. Discuss the applications of TDM.
(b) Discuss the effect of under sampling?

7. (a) What is companding? Why is it used? Why is it preferable to quantizing with tapered steps? Illustrate your answer with a sketch of typical companding curves.
(b) What are the advantages and applications of Pulse-code Modulation?
8. (a) Which is more efficient, circuit switching or virtual circuits switching? Why?
(b) What are the three switching methods? Explain

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