

**III B.Tech II Semester Supplementary Examinations,
November/December 2005**

**COMMUNICATION ENGINEERING
(Electronics & Instrumentation Engineering)**

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

**Answer any FIVE Questions
All Questions carry equal marks**

1. (a) Explain the operation of square law modulator.
(b) The message signal is given by $m(t) = 20 \cos 2\pi t$ volts and the carrier wave is $c(t) = 50 \cos 100\pi t$ volts. Find the power developed across a load of 100 ohms due to the AM wave with 75% modulation. [8+8]
2. (a) Draw the complete block diagram of the Armstrong frequency modulation system and explain the function of the mixer and multipliers. In what circumstances can we dispense with the mixer?
(b) The equation of an angle-modulated voltage $v(t) = 10 \sin(10^8 t + 3 \sin 10^4 t)$ what form of angle modulation is this? Calculate the carrier and modulating frequencies, the modulation index and deviation and power dissipated in a 100-ohm resistor. [8+8]
3. (a) Explain how frequency stability is achieved in modern transmitter.
(b) Describe with aid of suitable diagram, the principal method of SSB generation.
(c) Describe the advantages of a SSB SYSTEM for high frequency point to point communication and explain why it is unsuitable for broadcasting. [5+5+6]
4. (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+6+4]
5. What are the causes for fading in radio transmission? Explain in detail. Describe briefly different diversity systems for radio reception to reduce fading. [16]
6. (a) Discuss the two different forms of pulse time modulation for the case of a sinusoidal modulating wave.
(b) Discuss the features of pulse amplitude modulation. [10+6]
7. (a) Discuss the noise considerations in PCM. Give the influence of E_b/N_0 on the probability of error.
(b) Discuss the applications of M-ary modulation schemes. [8+8]
8. Write about the routing in circuit-switched networks? [8+8]
