



(3 Hours)

QP Code : 3567

[Total Marks : 80]

- N.B.** (1) Question No. 1 is **compulsory**.
 (2) Attempt any **three** questions from the remaining **five** questions.
 (3) Assume **suitable** data if **necessary**.

1. Attempt any five :— 20
- Discuss the need of modulation in communication systems
 - Write note on RF telemetry.
 - Derive Friis formula for total noise figure of cascaded amplifier.
 - Why SSB is not preferred for transmission of good quality of signal ?
 - Write note on OSI reference model.
 - Compare TDM and FDM
2. (a) Derive an expression for an AM signal. Also derive the power relationship. 10
 (b) A 20 MHz carrier is modulated by 600Hz audio sine wave. If the carrier voltage is 5V and maximum deviation is 15 KHz. Write the equation for this frequency modulated wave. If the modulating frequency is now changed to 1.5 KHz and carrier voltage is changed to 10V, all else remaining constant, write the equation for this wave, calculate the power dissipated across 100Ω resistor by both F.M. waves. 10
3. (a) Explain Indirect method of FM Generation. 10
 (b) Explain any one method of amplitude demodulation in detail. 10
4. (a) Explain briefly :— 10
- Phase shift keying (PSK)
 - Binary phase shift keying (BPSK)
- (b) Explain PCM transmitter and Receiver system. 10
5. (a) Explain in brief :— 10
- Pulse width modulation
 - Pulse position modulation
- (b) Explain in brief : 10
- Frequency shift keying
 - Amplitude shift keying.
6. (a) With the help of neat sketches explain voltage, current and position telemetry systems. 10
 (b) Explain the various communication modes as simplex, half duplex, duplex in detail. 10