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B.TECH
(SEM VII) THEORY EXAMINATION 2021-22
COMMUNICATION SYSTEMS

Time: 3 Hours**Total Marks: 70****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A**

- 1. Attempt all questions in brief. 2 x 7 = 14**
- Draw the phasor diagram of AM signal
 - Define sensitivity and selectivity
 - What is phase modulation?
 - Explain thermal noise.
 - What is the signaling rate in PCM?
 - n?
 - e?

SECTION B

- 2. Attempt any three of the following: 7 x 3 = 21**
- Explain generation and demodulation vestigial sideband modulation.
 - What is modulation index of FM signal? Explain direct method for generation of frequency modulation (FM)
 - Draw the block diagram of differential pulse code modulation transmitter and receiver. Explain their working principle.
 - How does PCS wireless differ from cellular service? Explain personal communication services PCS discuss in detail with examples?
 - Describe in brief the basic elements of the television system.

SECTION C

- 3. Attempt any one part of the following: 7 x 1 = 7**
- What is AM transmitter? Explain Tuned Radio Frequency receiver.
 - Explain Multiplexing Hierarchy in Frequency division multiplexing (FDM) for 12- voice channel.
- 4. Attempt any one part of the following: 7 x 1 = 7**
- Define average noise power. Explain in detail about noise in FM signal.
 - What is Bessel's function? Drive the expression for narrowband frequency modulation.
- 5. Attempt any one part of the following: 7 x 1 = 7**
- Determine (a) the peak frequency deviation, (b) minimum bandwidth, and (c) baud for a binary FSK signal with a mark frequency of 49 kHz, a space frequency of 51 kHz, and an input bit rate of 2 kbps.
 - What is quadrature amplitude modulation (AM)? Explain each block of QAM transmitter.
- 6. Attempt any one part of the following: 7 x 1 = 7**
- What is meant by transponder? How Geo-stationary satellite system works.
 - What is data communication? What are the main components of data communication?
- 7. Attempt any one part of the following: 7 x 1 = 7**
- How is color signals transmitted? What is the significance of Y signal in Color transmission and reception?
 - What is fiber optic communication? How a Fiber Optic Communication Works?