B. TECH.
(SEM. V) THEORY EXAMINATION 2019-20
PRINCIPLES OF COMMUNICATION

Time: 3 Hours   *Total Marks: 100*

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. **Attempt *all* questions in brief.**   **2 × 10 = 20**
    (a) Define baseband and pass band signals.
    (b) Draw the block diagram of basic communication system.
    (c) Explain Figure of Merit.
    (d) What are the factors affecting the output signal to noise ratio.
    (e) Explain Hubs and bridges in brief.
    (f) Explain deviation ratio of FM wave.
    (g) Explain the narrowband FM in brief.
    (h) Define amplitude modulation.
    (i) Explain the advantages of Delta Modulation.
    (j) Explain redundant information.

SECTION B

2. **Attempt any *three* of the following:**   **10 × 3 = 30**
    (a) Explain the communication channels and classify them.
    (b) Describe the Zero Crossing Detector for the demodulation of FM waves.
    (c) State and prove the sampling theorem and also explain the concept of aliasing.
    (d) Explain noise and various sources of noise in detail.
    (e) Discuss the threshold improvement through Pre-emphasis and De-emphasis.

SECTION C

3. **Attempt any *one* of the following:**   **10 × 1 = 10**
    (a) Describe the need of modulation in communication system.
    (b) Explain any two methods of demodulation of Double side band without carrier (DSB-SC) waves.

4. **Attempt any *one* of the following:**   **10 × 1 = 10**
    (a) Discuss Compatible SSB systems in detail.
    (b) Discuss the stereophonic FM broadcasting system.

5. **Attempt any *one* of the following:**   **10 × 1 = 10**
    (a) Explain Frequency Division Multiplexing and Time Division Multiplexing in detail.
    (b) Describe TDM Hierarchy in detail.

6. **Attempt any *one* of the following:**   **10 × 1 = 10**
    (a) Discuss the differential pulse code modulation (DPCM) in detail.
    (b) Explain Linear Filtering of noise in detail.

7. **Attempt any *one* of the following:**   **10 × 1 = 10**
    (a) Describe the noise in FM receivers in detail.
    (b) Write short notes on-
        (i) FM Threshold effect
        (ii) Noise Triangle