

SE(EXTC) SEM-4 C-Scheme May 2026

21/05/2026

Duration: 3hrs

Max Marks: 80

- N.B.: (1) Question No 1 is Compulsory.
 (2) Attempt any three questions out of the remaining five.
 (3) All questions carry equal marks.
 (4) Assume suitable data, if required and state it clearly.

- 1 Attempt any FOUR [20]
- Define Frequency modulation. State five points why do we need modulation? [10]
 - Define Single Sideband type of Amplitude Modulation. what are the advantages of SSB over DSB-FC [10]
 - Explain different types of Noise which effects communication [10]
 - Compare AM and FM. [10]
 - Define sensitivity, selectivity, image frequency rejection ratio and fidelity of a receiver. [10]
- 2 a Explain with circuit diagram and neat waveforms Ring modulator to generate DSB-SC [10]
- b What is Amplitude modulation Derive the mathematical equation for Amplitude Modulation [10]
- 3 a The AM transmitter generates a carrier signal of amplitude 5.5V and frequency 2MHz. [10]
 The carrier is modulated to a depth of 65% by an audio signal of 6KHz.
 Assume $R=10\Omega$.
 i) Determine the total transmitted power [10]
 ii) Determine the SSB power [10]
 iii) Percentage of power saving if SSB is transmitted [10]
 iv) Draw the Power spectrum and find the bandwidth. [10]
- b Explain the working of Superheterodyne AM receiver in detail. Show the waveforms at the output of various stages. [10]
- 4 a Explain Armstrong method of FM generation in detail with neat block diagram. [10]
- b Explain the PCM transmitter and receiver with the help of proper block diagram. What is the advantage of DPCM over PCM? [10]
- 5 a What is multiplexing? Explain the working of FDM transmitter and receiver with its block diagram. [10]
- b Explain any one FM demodulator circuit in detail. State the limitations of the same. [10]
- 6 a Total Power transmitted in AM: Derive expression [10]
- b Comparison between PAM,PWM,PPM [10]