23/05/2025 SE EXTC SEM-IV C-SCHEME PCE QP CODE: 10079194

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]**
	a	Differentiate between analog and digital communication system	
	b	Define: a) Noise Figure b) Signal to Noise Ratio c) Image Frequency	
	c	Why is VSB amplitude modulation used in television broadcasting?	
	d	Modulation improves the quality of communication, justify this statement.	
	e	How important is multiplexing in communication system?	
2	**a**	Explain with block diagram and waveforms of SSB AM generation.	**[10]**
	b	Derive the wave equation for AM wave. Draw the time domain and frequency domain representation of AM wave.	**[10]**
3	**a**	Explain the working of Foster Seeley discriminator as FM demodulator. What are its advantages over balanced slope detector?	**[10]**
	b	State and prove sampling theorem. State the consequences of not satisfying Nyquist criteria in sampling	**[10]**
4	**a**	What is the need of multiplexing? Explain the time division multiplexing in detail along with its applications.	**[10]**
	b	Explain Delta Modulation in detail and what are its drawbacks?	**[10]**
5	**a**	State and explain Friss formula and define Equivalent Noise Temperature.	**[10]**
	b	Explain the working of diode detector. How is practical diode detector different from diode detector?	**[10]**
6	**a**	Draw block diagram of Super heterodyne receiver and explain its characteristics.	**[10]**
	b	What is narrowband and wideband FM?	**[5]**
	c	Draw and explain the difference between PAM, PPM and PWM.	**[5]**

****