PVP 23

Code: 23EC3403

II B.Tech - II Semester – Regular Examinations - MAY 2025

ANALOG COMMUNICATIONS
(ELECTRONICS & COMMUNICATION ENGINEERING)

Duration: 3 hours Max. Marks: 70

Note: 1. This question paper contains two Parts A and B.
2. Part-A contains 10 short answer questions. Each Question carries 2 Marks.
3. Part-B contains 5 essay questions with an internal choice from each unit. Each Question carries 10 marks.
4. All parts of Question paper must be answered in one place.

BL – Blooms Level CO – Course Outcome

PART – A

		BL	CO
1.a)	Draw the block diagram of communication system.	L1	CO1
1.b)	What is meant by modulation?	L1	CO1
1.c)	With the help of neat diagram explain VSB signal.	L1	CO2
1.d)	Write the time domain representation of SSB signal.	L1	CO2
1.e)	Define angle modulation.	L1	CO3
1.f)	State the advantage of FM Radio broadcasting.	L1	CO3
1.g)	Define Figure of Merit of Receiver.	L1	CO4
1.h)	What is FM threshold effect?	L1	CO4
1.i)	Describe Nyquist rate & Nyquist interval.	L1	CO5
1.j)	Compare PAM and PWM.	L1	CO5

PART – B

			BL	CO	Max. Marks
UNIT-I					
2	a)	With necessary expressions, explain single-tone AM.	L2	CO1	5 M
	b)	With the help of circuit diagram explain the operation of square-law diode modulator for AM.	L2	CO1	5 M
OR					
3	a)	With the help of neat diagram explain AM Envelop detector.	L2	CO1	5 M
	b)	Write short notes on AM switching modulator with necessary equations.	L2	CO1	5 M
UNIT-II					
4	a)	Explain generation of DSB-SC signal with the help of balanced modulator.	L2	CO2	5 M
	b)	Derive an expression for SSB-SC modulated wave.	L3	CO2	5 M
OR					
5	a)	With the help of neat diagram explain VSB modulated signal.	L2	CO2	5 M
	b)	Compare different types of AM techniques.	L2	CO2	5 M
UNIT-III					
6	a)	Explain the generation of FM using direct method.	L2	CO3	5 M

	b)	Write a short notes on Super-heterodyne FM receiver.	L1	CO3	5 M
OR					
7	a)	For an FM modulator with a modulating signal $m(t) = V_m \sin(300\times10^3 t)$, the carrier Signal $V_c(t)=8 \sin(6.5\times10^6 t)$ and the modulator index = 2. Find out the significant side band frequencies and its bandwidth.	L4	CO3	5 M
	b)	Compare frequency and Amplitude modulation.	L2	CO3	5 M
UNIT-IV					
8	a)	Write short note on Pre-Emphasis and De-Emphasis circuits.	L1	CO4	5 M
	b)	Discuss about FM receiver model.	L3	CO4	5 M
OR					
9	a)	Compare the noise performance in frequency modulated system and amplitude modulated systems.	L2	CO4	5 M
	b)	Obtain the expression for output SNR of AM system.	L3	CO4	5 M
UNIT-V					
10	a)	State and prove sampling theorem.	L2	CO5	5 M
	b)	Explain generation of PAM with mathematical analysis.	L2	CO5	5 M
OR					

11	a)	Explain how PPM can be generated from PWM signals.	L2	CO5	5 M
	b)	Describe Time Division Multiplexing.	L2	CO5	5 M