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22LDE/LDS/LEC13

First Semester M.Tech. Degree Examination, Dec.2023/Jan.2024

Advanced Communication System - 1

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.

2. M : Marks , L: Bloom's level , C: Course outcomes.

Module – 1			M	L	C
Q.1	a.	With necessary equation, explain Lowpass equivalent of BPS.	10	L2	CO1
	b.	Derive an equation for average power in terms of average energy.	10	L3	CO1
OR					
Q.2	a.	In detail, explain Memoryless Modulation methods.	10	L2	CO1
	b.	Explain Minimum shift keying and Offset QPSK signaling method.	10	L2	CO1
Module – 2					
Q.3	a.	With necessary factors compare the Digital Signal methods.	10	L2	CO2
	b.	With a neat block diagram and necessary equation, explain matched filter receiver.	10	L2	CO2
OR					
Q.4	a.	Derive an equation for probability of error for Binary Antipodal signaling.	10	L3	CO2
	b.	Considering Optimal detection derive an equation for error probability for orthogonal signaling.	10	L3	CO2
Module – 3					
Q.5	a.	Explain the concept of inter-symbol interference channel model with AWGN.	10	L2	CO3
	b.	With necessary equation , briefly explain design of Band Limited Signals, with controlled ISI.	10	L3	CO3
OR					
Q.6	a.	For the given data sequence, find Duo-binary pulses : i) 1 1 1 0 1 0 0 1 0 0 0 1 1 0 1 ii) 0 0 1 3 1 2 0 3 3 2 0 1 0.	10	L3	CO3
	b.	What is Peak distortion criterion? Explain the block diagram of channel with equivalent zero – forcing equalizer.	10	L2	CO3
Module – 4					
Q.7	a.	Explain the convergence properties of the LMS algorithm.	10	L2	CO4
	b.	Explain Adaptive Decision – Feedback equalizer.	10	L2	CO4

OR					
Q.8	a.	With a neat block diagram, explain PSK signal equalization.	10	L2	CO4
	b.	With a neat block diagram, explain Baseband and Passband linear equalizer.	10	L2	CO4
Module – 5					
Q.9	a.	With necessary equation, explain DS – QPSK modulator.	10	L2	CO5
	b.	With a neat block diagram, explain IS95 forward link.	10	L2	CO5
OR					
Q.10	a.	Taking one example in detail, explain the generation of PN sequence.	10	L2	CO5
	b.	With a neat block diagram, explain time hopping spread spectrum.	10	L2	CO5
