

CBCS Scheme: 2017-18

MODEL QUESTION PAPER

15 EI/BM/ML 61

Sixth Semester B.E. Degree Examinations

Analog and Digital Communication Systems

Time: 3 Hrs

Max. Marks: 80

Note: Answer FIVE FULL Questions, selecting ONE FULL Question from each Module

Question Number		Question	Marks Allotted
Module -1			
1	a.	Considering single tone modulation, derive time domain and frequency domain expression for AM wave and draw its spectrum.	8
	b.	The rms antenna current of an AM transmitter increased by 15% over unmodulated value, when sinusoidal modulation by 1 kHz is applied. Determine the modulation index.	4
	c.	Draw a neat block diagram COSTAS receiver used for demodulation of DSBSC wave.	4
OR			
2	a.	With a neat block diagram and necessary equations explain coherent detection of DSBSC wave.	6
	b.	Draw the block diagram of phase discrimination method of generating SSB wave.	4
	c.	With necessary equations explain coherent detection of VSB wave	6
Module -2			
3	a.	Discuss the properties of angle modulated wave.	6
	b.	With a block diagram and necessary equations explain generation of NBFM.	10
OR			
4	a.	Derive time domain expression representing WBFM wave, also give equation representing its spectrum.	8
	b.	With block diagrams and equations explain how PLL can be used for demodulation of FM wave.	8

Module -3			
5	a.	State and prove sampling theorem, draw the spectrum of $G(f)$ and $G_{\delta}(f)$	8
	b.	With a neat diagram and necessary equations explain the working principle of pulse amplitude modulation.	8
OR			
6	a.	Draw a neat block diagram explain the PCM system,	8
	b.	Draw the block diagram of Delta modulator.	4
	c.	With a neat block diagram explain operation of TDM.	4
Module -4			
7	a.	With necessary equations and waveforms, explain the concept of QPSK.	6
	b.	With a block diagram and necessary equations explain generation and detection of DPSK	10
OR			
8	a.	Draw the block diagrams that represents the following i) QPSK Transmitter ii) QPSK Receiver	6
	b.	With necessary equations explain the concept of MSK and mention its advantages over OQPSK , draw the MSK waveform considering a symbol sequence.	10
Module -5			
9	a.	With a neat diagram explain Bluetooth protocol stack.	10
	b.	With the diagrams explain Zigbee topologies	6
OR			
10	a.	List and explain the methods to Increase Capacity in Cellular Networks	4
	b.	A cellular network has a total bandwidth of 56 MHz. If two 35 kHz simplex channels are used to provide full-duplex voice and control channels, compute the number of channels available per cell if a system uses (a) 4-cell/ reuse, (b) 7-cell/ reuse, and (c) 12-cell/reuse.	4
	c.	List and explain the salient features of GSM.	8