Q.P. Code :13502

08

(Time: 3 Hours)

[Total Marks: 80]

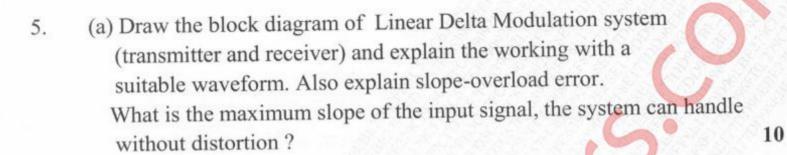
	Please	e check whether you have got the right question paper.	1	
N.I	B.: (1) Ques	tion No. 1 is compulsory.	* E	
	(2) Atten	npt any three questions from the remaining questions.	THE STATE OF THE S	
	(3) Assur	me suitable data if necessary.	AT.	
1.	Attempt an	ny four:-	20	
	(a) Explain Pre-emphasis and De-emphasis.(b) Compare the SSB and VSB techniques.			
	(c) C	Calculate the maximum bandwidth requirement for FM		
	b	roadcast if the maximum deviation allowed is 75 kHz and t	the	
	m	naximum modulation frequency allowed is 15 KHz.		
	(d) V	Write note on PAM telemetry system.		
	(e) E	Explain OSI reference model.		
2.	(a) Explain	in brief :-	10	
		(i) Frequency Shift Keying (FSK)		
		Quaternary Phase Shift Keying (QPSK)		
	(b) An Amplitude modulated waveform has the form:			
		[10 $(1 + 0.6 \cos 2000 \pi t + 0.6 \cos 4000 \pi t) \cos 20,000 \pi t$		
	(i	Sketch the amplitude spectrum of Xc(t).	,	
	ii)	Find the power content of each spectral component inclu-	ding	
		the carrier.		
	iii)	What is the modulation index?		
	iv)	Find the power carried by the sidebands and total power.		
3.	(a) Define and describe pulse position modulation. Explain			
	with waveforms how it is derived from PWM.			
	(b) Explain the various communication modes as simplex, half			
	duplex and duplex in detail.			
4.	(a) Draw the ASK, BPSK, QPSK and BPSK waveforms for digital			
	data 10	01001011.	10	

(b) (i) Draw the circuit diagram of a Foster Seeley phase discriminator

and explain its principle of operation with phasor diagram.

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(ii) Is it required to transmit the complex modulating signal in which the highest frequency component is 4 KHz. Compare the bandwidth required for AM, SSB and FM. Given that the maximum frequency deviation is 16 KHz.



(b) With the help of neat sketches explain voltage, current and position telemetry Systems.

- 6. Write Short notes on any four: -
 - (a) SSB modulation
 - (b) Multiplexing techniques
 - (c) FM Noise Triangle
 - (d) Feedback Telemetry
 - (e) GPIB Bus
