B.E.(with Credits)-Regular-Semester 2012-Information Technology Sem VII IT - Wireless Communication

P. Pages : 2 Time : Three Hours		2 ee Hours $\star 4737 \star$	GUG/W/16/6611 Max. Marks : 80	
	Note	 s: 1. All questions carry marks as indicated. 2. Illustrate your answers wherever necessary with help of neat sketch 	nes.	
1.	a)	Discuss quadrature phase shift keying technique along with its block diagram waveform. Also draw its phasor diagram.	m and detailed 10	
	b)	Plot the waveforms for PSK and FSK techniques for the sequence 1100101	1. 6	
		OR		
2.	a)	Write a note on differential phase shift keying technique.	8	
	b)	Differentiate between QPSK and MSK.	4	
	c)	Describe M'ary FSK technique.	4	
3.	a)	Define probability. Discuss the properties of probability. Also define condit probability. Also explain mutually independent event and mutually exclusive	ional 8 re events.	
	b)	A coin is tossed 4 times in succession. Determine the probability of obtaining three heads. Write all the sample space.	ng exactly 4	
	c)	Define random variables what do you mean by cumulative distribution func properties of CDF.	tion state the 4	
		OR		
4.	a)	What do you mean by autocorrelation function. Discuss its properties.	8	
	b)	Find the PSD and power of a sinusoid given by the equation $X(t) = A \cos(w)$	$vct + \phi$). 8	
5.	a)	What do you mean by spread spectrum technique. Explain with suitable exa PN sequence is generated.	mple how the 8	
	b)	What are the special characteristics of spread spectrum system which makes from the normal modulation system.	it different 4	
	c)	What do you mean by processing gain ? Explain Also derive the expression	for it. 4	
		OR		
6.	a)	What do you mean by frequency multiplexing ? Explain with suitable exam	ples. 8	
	b)	Describe SDMA in detail.	8	

7.	a)	Describe GSM with the help of its architecture.	
	b)	Discuss - i) VLR ii) HLR	6
		OR	
8.	a)	What do you mean by Handoff mechanism. Explain in detail.	8
	b)	Compare GSM with CDMA in the context of handoff or handover.	8
9.	a)	The parity check matrix of a particular (7, 4) linear block code is given as - $H = \begin{bmatrix} 1 & 1 & 1 & 0 & 1 & 0 & 0 \\ 1 & 1 & 0 & 1 & 0 & 1 & 0 \\ 1 & 0 & 1 & 1 & 0 & 0 & 1 \end{bmatrix}$ Obtain the generator matrix (C _n) and list all the code vectors. Define error syndrome and calculate it for atleast two codes.	12
	b)	Define Hamming distance and Hamming weight and describe with suitable examples.	4
10.	a)	The encoder for a convolutional encoder is shown below. $\begin{array}{c} & & \\ \hline m_1 & \hline m_2 & \hline m_3 \\ \hline & & \\ \hline & & \\ \end{array}$	12

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Find all the code words for 4 bit input. Also construct a code tree.

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Define entropy. Derive the expression for it.

b)