

Reg.No. _____



Karunya UNIVERSITY

(Karunya Institute of Technology & Sciences)
(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

End Semester Examination – Nov/Dec – 2016

Code : **14EC3012**
Sub. Name : **MODERN DIGITAL COMMUNICATIONS**

Semester : **2016-17 ODD**
Duration : **3hrs**
Max. marks : **100**

ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)

Q. No.	Sub Div.	Questions	Course Outcome	Marks
1.	a.	List out the parameters used to choose PCM formats	CO1	6
	b.	Explain correlatively coded duobinary signaling of PCM data for the bit stream 101110101 by taking reference bit-0	CO1	14
(OR)				
2.	a.	Explain the types of quantization process with suitable example	CO1	12
	b.	With a neat sketch explain the quantization process and derive the expression for $(SNR)_q$	CO1	8
3.	a.	For the bit stream 1011010101, draw the following PCM waveforms. i. NRZ-L ii. NRZ-S iii. Biphase-M iv. Unipolar-RZ		10
	b.	Explain the companding process with its type and significance	CO1	10
(OR)				
4.	a.	Using a neat sketch explain the baseband data formatting process	CO2	8
	b.	Comment on the spectral features of various PCM schemes	CO2	7
	c.	Why E_b/N_o is a natural figure of merit of digital communication systems	CO2	5
5.	a.	Explain the matched filter and derive its maximum SNR	CO2	15
	b.	Describe the structure of baseband detection system	CO2	5
(OR)				
6.	a.	How will you compare convolution with correlation? Obtain the correlation realization of matched filter	CO2	5
	b.	Explain how pulse shaping of Raised Cosine filters reduce ISI	CO2	15
7.	a.	With neat block diagram, explain decision feedback equalizer	CO2	8
	b.	Brief the theory of channel characterization with its transfer function	CO2	7
(OR)				
8.	a.	Neatly explain the MPSK modulation and detection process	CO3	10
	b.	With block diagram brief the non-coherent FSK detection using envelope detectors	CO3	10
<u>Compulsory:</u>				
9.	a.	With a neat sketch explain the multi-carrier modulation technique	CO3	15
	b.	List out the properties of an estimator	CO3	5

ALL THE BEST