M. Tech Morning

Date: 01/01/2014.

Student Exam No._____

GANPAT UNIVERSITY

M. Tech. Semester: I (E.C.) Regular Examination January 2014.

3EC103 - ADVANCED DIGITAL COMMUNICATION

Time: 3 Hours | Total Marks: 70

Instructions:

1. Attempt **all** questions.
2. Answers to the **two** sections must be written in **separate** answer books.
3. Figures to the **right** indicate full marks.
4. **Assume** suitable data, if necessary.
5.

Section – I

Que. – 1	A	Explain the Differential PSK (DPSK) transmitter in detail.	6
	B	What is mean by orthogonal? Also explain the two basic steps in the demodulation/detection of digital signals.	6
		OR	
Que. – 1	A	Explain the FSK receiver using block diagram.	6
	B	Derive the equation for bit error probability for orthogonal and antipodal signals.	6
Que. – 2	A	Derive the equation for impulse response of matched filter.	6
	B	Derive the equation for error probability for BPSK signal.	5
		OR	
Que. – 2	A	Define the time limited and band limited signal. Also Differentiate the energy signal and power signal.	5
	B	Explain the PSK transmitter using block diagram.	6
Que. – 3	A	Draw the block diagram of typical digital communication system and explain the essential component of digital communication system.	6
	B	Which parameter we have to consider for enhancing the performance of digital communication system? Also explain the D-H algorithm using suitable example.	6

Section – II

Que. – 4	A	What is carrier sense multiple access? Derive the equation for normalized throughput for slotted Pure ALOHA.	6
	B	What is synchronization? Explain the three types of open –loop bit synchronizers.	6
		OR	
Que. – 4	A	Explain the MSK Technique using necessary waveforms.	6
	B	List the application of spread spectrum modulation. Also explain the direct sequence spread spectrum technique.	6
Que. – 5	A	What is mean by entropy? Determine the entropy and efficiency for message "HELLO GOOD EVENING" using Huffman coding.	6
	B	Explain the Trellis coded modulation.	5
		OR	
Que. – 5	A	What is synchronization? Explain the frequency and phase synchronization.	5
	B	Explain the bandwidth-efficiency plane in detail.	6
Que. – 6	A	Differentiate the spread spectrum signal and normal signal. Explain the TDM and FDM Techniques in detail.	6
	B	Explain the QPSK transmitter using block diagram.	6