

## GANPAT UNIVERSITY

## B. Tech. Semester: VI Electronics and Communication Engineering

Regular / Remedial Examination April – June 2016

## Digital Communication (2EC 605)

Time: 3 Hours

Total Marks: 70

- Instruction: 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. Standard terms and notations are used and assume suitable data, if necessary.  
 5. Question numbers THREE and SIX are compulsory.

## Section - I

- Que. – 1 (A) Explain any seven advantages of digital communication. 7  
 (B) State sampling theorem and give briefing on it. 5

OR

- Que. – 1 (A) Find the Nyquist rate for the analog signal is expressed by the equation 5  
 $x(t) = (1/2\pi) \{(\cos 5000\pi t) \times (\cos 1000\pi t)\}$ .  
 (B) Explain PCM with the help of diagram. 7

- Que. – 2 (A) Compare PWM with PPM in context of digital communication. 6  
 (B) Explain principle of TDM and how it is used in T1 system. 5

OR

- Que. – 2 (A) Compare small scale fading with large scale fading. 6  
 (B) Compare Rayleigh fading with Rician fading. 5

- Que. – 3 (A) Why adaptive delta modulation is named so? Explain. 5  
 (B) What is granular noise in context of delta modulation? Explain it. 4  
 (C) What is line of sight (LOS)? 3

## Section – II

- Que. – 4 (A) List various types of line codes and encode the binary data 6  
 1001110101010 into POLAR RZ, POLAR NRZ and AMI Signaling.  
 (B) Draw the FSK Waveform for binary data 10011101. Explain BFSK 6  
 transmitter using block diagram.

OR

- Que. – 4 (A) Explain BPSK Receiver using block diagram and necessary 6  
 derivations.  
 (B) Differentiate the coherent detection and non-coherent detection. Encode 6  
 the binary data 10000100001100001 into High density bipolar (HDB)  
 signaling.

- Que. - 5 (A) Give any three definitions of orthogonality and explain any one of them. 5  
(B) Explain the concept of match filter in context of digital communication. 6

OR

- Que. - 5 (A) Write short notes on the topic "signal as a vector". 6  
(B) What is baseband signal and how it is different from band pass signal? 3  
(C) Differentiate the detection and demodulation. 2

- Que. - 6 (A) Explain QPSK Receiver using block diagram and necessary derivations. 6  
(B) Derive the equation for Power Spectral Density (PSD) of NRZ Unipolar Format. 6

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