

C.U.SHAH UNIVERSITY

Summer Examination-2017

Subject Name: Digital Communication

Subject Code: 4TE06DCM1

Branch: B.Tech (EC)

Semester: 6

Date: 11/04/2017

Time: 02:30 To 05:30

Marks :70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
 - (2) Instructions written on main answer book are strictly to be obeyed.
 - (3) Draw neat diagrams and figures (if necessary) at right places.
 - (4) Assume suitable data if needed.
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- Q-1** **Define the following terms:** **(14)**
- a) Channel Capacity.
 - b) Channel Bandwidth.
 - c) Guard band.
 - d) Nyquist Rate.
 - e) Inter Symbol Interference.
 - f) Multiplexing.
 - g) Aliasing Error.
 - h) Slope Overload error.
 - i) Granular Noise.
 - j) Uniform Quantization.
 - k) Companding.
 - l) PWM.
 - m) PPM.
 - n) AMI NRZ.

Attempt any four questions from Q-2 to Q-8

- Q-2** **Attempt all questions** **(14)**
- (a) Draw the block diagram of digital communication system. Explain the three major signal processing tasks.
 - (b) What is Time division multiplexing? What is the concept behind it? What are the advantages and disadvantages of it?
- Q-3** **Attempt all questions** **(14)**
- (a) State and explain Sampling Theorem
 - (b) What is Space division multiplexing? What is the concept behind it? What are the advantages and disadvantages of it?



- Q-4** **Attempt all questions** (14)
- (a) Explain the method of quantization and derive the expression of the quantization error.
 - (b) Draw and explain the block diagram of regenerative repeater
- Q-5** **Attempt all questions** (14)
- (a) Explain working principle of delta modulation with help of block diagram. What are the problems associated with delta modulation?
 - (b) Explain with the help of suitable block diagram the pulse width modulation scheme.
- Q-6** **Attempt all questions** (14)
- (a) Write short note on Line coding formats.
 - (b) Explain mathematical and graphical representation of BFSK. Explain BFSK generation.
- Q-7** **Attempt all questions** (14)
- (a) Write short note on QAM.
 - (b) Explain the operation of originate and answer mode
- Q-8** **Attempt all questions** (14)
- (a) Explain RS-232 pin configurations.
 - (b) What is handshaking? Explain handshaking in detail with its limitations.

