COURSE CODE: 10B11EC511   MAX. MARKS: 50

COURSE NAME: DIGITAL COMMUNICATION   MAX. TIME: 2 HRS.

Note: All questions are compulsory. Carrying of mobile phone during examination will be treated as case of unfair means. Use of calculator is permitted.

Q1(a) With the help of a suitable diagram explain the building blocks of a Digital Communication System. Elaborate the advantages of digital communication systems over analog communication systems.

[10 Marks]

(b) What are the steps involved in converting an analog signal to digital signal. Explain each step in detail.   **[5 Marks]**

Q2(a) With the help of a suitable diagram explain the working of transmitter and receiver used in DPCM scheme.   **[8 Marks]**

(b) How does an ideal eye pattern look like? Draw and explain it in detail.   **[5 Marks]**

Q3(a) Represent 01101001 with the help of following line codes (i) Bipolar NRZ (ii) Unipolar RZ (iii) Bipolar RZ (iv) Manchester Coding   **[6 Marks]**

(b) State and derive Sampling theorem.   **[6 Marks]**

Q4(a) What is Delta Modulation? What are the two types of errors encountered in this scheme? Explain.

[6 Marks]

(b) Specify the Nyquist rate and Nyquist interval for the following signals   **[4 Marks]**

(i) $g(t) = \text{sinc}(200t)$

(ii) $g(t) = \text{sinc}^2(200t)$

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