

B.Tech. III SEMESTER**Digital and Analog Communication (CE 205)**

Time: 3 Hours

Max. Marks:60

- Instructions:**
1. It is compulsory to answer all the questions (2 marks each) of Part -A in short.
 2. Answer any four questions from Part -B in detail.
 3. Different sub-parts of a question are to be attempted adjacent to each other.

PART -A

- Q1 (a) Draw the basic block diagram of communication system. (2)
- (b) Explain the linearity and frequency shifting properties of Fourier transform. (2)
- (c) What is a signal? How Analog signal is different from digital signal? (2)
- (d) Differentiate between simplex and half duplex mode of data communication with example. (2)
- (e) What is sliding window protocol? (2)
- (f) What is cryptography? (2)
- (g) What is parity check method of error detection? (2)
- (h) Differentiate between WDM and TDM. (2)
- (i) Explain the twisted pair and coaxial cable as transmission media. (2)
- (j) What is nyquist rate? (2)

PART -B

- Q2 (a) Find out fourier series expansion of a signal given by $x(t)=2 \sin 2\pi(t)$ where $0 < t < 2$ (5)
- (b) Discuss effects of bandwidth in digital communication system. (5)
- Q3 (a) Why modulation is required in communication system? Enlist the various difference between AM and FM. (5)
- (b) Explain in details about RS232 physical layer interface. (5)
- Q4 (a) Derive an expression for data rate of a channel by Shannon. (5)
- (b) What is Huffman encoding? Where it is used? (5)
- Q5 (a) Write in detail about PSTN system with the help of block diagram. (5)
- (b) What are forward error control approaches? (5)
- Q6 (a) Explain Nyquist and Shannon theorem for channel capacity. (5)
- (b) Explain secret key and public key cryptography (5)
- Q7 (a) Find out the Huffman code for discrete memory less source with probability statistics (0.1, 0.1, 0.2, 0.2, 0.4) (5)

(b) Write short note on

- (i) Cyclic redundancy check code
- (ii) Connection oriented data communication services.
