

Roll No.

Total Pages : 3

015401

August/September 2022

B.Tech. (ENC) IV SEMESTER

Digital Communication (ECP-401)

Time : 3 Hours]

[Max. Marks : 75

Instructions :

1. *It is compulsory to answer all the questions (1.5 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

1. (a) Give salient features of sine and square waves. (1.5)
- (b) Define connectionless-services. Give its use in digital communication. (1.5)
- (c) What do you understand by NRZ? Give its application. (1.5)
- (d) State and explain Nyquist theorem. (1.5)
- (e) What are transmission impairments? Give examples. (1.5)

015401/100/111/221

181[P.T.O.]

- (f) What is meant by PSTN? Enlists its salient features. (1.5)
- (g) Define wave division multiplexing. Give its applications. (1.5)
- (h) What is cyclic redundancy check? Give its merits. (1.5)
- (i) What is data compression? Give its applications. (1.5)
- (j) Enlists salient features of RS-232. (1.5)

PART-B

- 2. (a) Define ESD and PSD. Also explain effects of limited bandwidth on digital signal. (10)
- (b) Differentiate between Fourier series and Fourier Transform. (5)
- 3. (a) Make comparisons between digital and analog signals. (5)
- (b) Define modulation. Using an example, explain various properties of a signal. (10)
- 4. Compare twisted pair, co-axial and fiber optic-cables. Using suitable schematics, explain the operation of Manchester and differential Manchester encoding. (15)

- 5. (a) Make comparison between virtual circuits and permanent virtual circuits. (5)
- (b) Define FDM and TDM. Explain the operation, merits and applications of ISDN. (10)
- 6. (a) What is meant by transmission errors? By using an example, explain the concept of parity check and block sum check in data communication. (10)
- (b) Differentiate between secret key and public key cryptography. (5)
- 7. Compare Run length encoding and Huffman encoding. Also, by using an example, explain Huffman encoding. Give its merits and demerits. (15)