



**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**

**B.C.A.,B.SC. DEGREE EXAMINATION – COMPUTER APPLICATIONS AND COMP. SCI.**

**FIFTH SEMESTER – APRIL 2023**

**UCA 5601/UCS 5604 – DATA COMMUNICATION AND NETWORKS**

Date: 15-05-2023

Dept. No.

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

**PART – A**

**(10 x 2 = 20 Marks)**

**Q. No Answer ALL the Questions**

- 1 What are the two types of line configuration?
- 2 What is the difference between half duplex and full duplex transmission mode?
- 3 Draw an analog signal with frequency 6.
- 4 Define attenuation.
- 5 Compare data rate and signal rate.
- 6 List out the common characteristics of line coding.
- 7 Write the purpose of Multiplexing.
- 8 What is the difference between Omni directional and Unidirectional?
- 9 Convert 10001001 into polynomial.
- 10 What are the different types of addresses used in Data Link layer?

**PART – B**

**(5 x 8 = 40 Marks)**

**Answer ALL the Questions**

- 11 (a) Write the advantages of basic network topologies.  
OR  
(b) Define Network and explain its types.
- 12 (a) Write the short note on the following:
  - (i) Wavelength
  - (ii) Composite signal
  - (iii) Amplitude
  - (iv) FrequencyOR  
(b) Compare the following
  - (i) Digital and Analog
  - (ii) Periodic and Aperiodic
- 13 (a) Discuss different types of serial transmission.  
OR  
(b) Explain the procedure of PCM with a neat diagram
- 14 (a) Discuss different propagation modes used in fiber optic with neat diagrams.  
OR  
(b) Compare Radio wave, micro wave and Infrared.

- 15 (a) Discuss different types of Errors with an example for each type

OR

- (b) List the steps involved in creating checksum for sender and receiver.

**PART – C**

**(2 x 20 = 40 Marks)**

**Answer any TWO Questions**

- 16 (a) Discuss the functionality of the following layers. (15)  
(i) Network (ii) Transport (iii) Session (iv) Presentation (v) Application
- (b) Compare TCP/IP and OSI model. (5)
- 17 (a) Explain the Time domain and Frequency Domain of a sine wave with neat diagrams. (5)
- (b) Explain the following Line coding schemes with neat diagrams (15)
- (i) Unipolar
  - (ii) Polar
  - (iii) Bipolar
- 18 (a) Discuss different categories of TDM with neat diagram. (10)
- (b) Given a 10 bit sequence 1010011110 and a divisor of 1011, find the CRC. Check your answer (10)

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