Exam Date & Time: 29-Dec-2020 (10:00 AM - 01:45 PM)

CHAROTAR UNIVERSITY OF SCIENCE AND TECHNOLOGY

Data Communication and Networking [IT252]

Marks: 70 **Duration: 225 mins.**

Section-A

Answer all the questions.

1) Which of the following is not the characterises of data communication (1)

1) Accuracy 2) Delivery 3) Timeliness 4) Message

2) In data communication, text is represented as _____ (1)

1) 0s and 1s 2) 0s 3) 1s 4) 0s or 1s

3) ANSI is the abbreviation of _____. (1)

1) American National Standards Institute 2) American National Standard International 3) Asian National Standards Institute 4) American National Social Institute

4) Each layer of the OSI model receives services or data from a ___ layer. (1)

1) Above layer 2) Below layer 3) (a) and (b) both 4) None of the above

5) Most packet switches use this principle _____? (1)

1) Stop and wait 2) Store and forward 3) Store and wait 4) Stop and forward

6) What are the Methods to move data through a network of links and switches? (1)

1) Packet switching and Line switching 2) Circuit switching and Line switching 3) Line switching and bit switching 4) Packet switching and Circuit switching

7) To detect or correct errors, we need to send extra (redundant) bits with data. (1)

1) True 2) False

8) In block coding, we divide our message into blocks, each of k bits, called _____.

(1)

1) codeword 2) code 3) dataword 4) data

9) Major function of the _____ layer is to move data in the form of electronic signals across a transmission medium.

(1)

1) Datalink layer 2) Physical layer 3) Application layer 4) Transport layer

10) In _____ encoding one amplitude represents a 1 bit and zero amplitude represents a 0 bit (or vice versa).

(1)

1) nonpolar 2) bipolar 3) polar 4) unipolar

11) NRZ-L is a _____ encoding method.

(1)

1) RZ 2) Manchester 3) Differential Manchester 4) NRZ-I

12) The _____ rate defines the number of data elements sent in 1s; the _____ rate is the number of signal elements sent in 1s.

(1)

1) Signal, data 2) Baud, data 3) Signal, baud 4) Data, signal

13) Unipolar, bipolar, and polar encoding are types of _____ encoding.

(1)

1) Block 2) Line 3) NRZ 4) Manchester

14) Before data can be transmitted, they must be transformed to _____.

(1)

1) Periodic signals 2) Electromagnetic signals 3) Aperiodic signals 4) Electromagnetic waves

15) In synchronous TDM, for n signal sources of the same data rate, each frame contains _____ slots.

(1)

1) n + 1 2) n – 1 3) 0 to n 4) n

16) Which multiplexing technique transmits digital signals? (1)

1) FDM 2) TDM 3) WDM 4) SDM

17) Each TV channel has its own bandwidth of. (1)

1) 6 Hz 2) 6KHz 3) 6MHz 4) 6NHz

18) Wavelength Division Multiplexing is same as _____. (1)

1) FDM 2) DWDM 3) TDM 4) All of the above

19) _____ is a communication channel that carries the information from the sender to the receiver. (1)

1) Topology 2) Server 3) Transmission Mode 4) Transmission Media

20) How many conductors are there in twisted pair cable? (1)

1) 1 2) 2 3) Infinite 4) None

Section - B

Answer all the questions.

1) Define Syntax and Semantics. (1)

2) Elaborate the difference between TCP/IP protocol suite and OSI layer model. (4)

3) What is the propagation time if the distance between the two points is 10,000 km? Assume the propagation speed to be 2.5 × 110 m/s in cable. (2)

4) Define Guided Media. List and explain type of Guided media (3)

[OR]
5) Define Unguided Media. List and explain type of Unguided media. (3)

6) Explain Process of Error Detection in block coding. (2)

7)	If a periodic signal is decomposed into five sine waves with frequencies of 100, 300, 500, 700, and 900 Hz, what is its bandwidth? Draw the spectrum, assuming all components have a maximum amplitude of 10 V.	(3)
8)	Discuss Digital to Digital Conversion in detail.	(3)
[OR] 9)	Discuss Digital to Analog Conversion in detail.	(3)
10)	Differentiate TDM and FDM.	(4)
11)	Draw and explain twisted pair cable with its example.	(3)

Section - C

Answer all the questions.

1)	Communication is two directional and done concurrently in Full Duplex mode of communication. True or False	(1)
2)	Explain the process of communication between a sender and receiver using OSI layer model.	(5)
3)	Compare analog and digital signals.	(2)
4)	Explain types of Errors.	(2)
[OR] 5)	Define Parity Check, Vertical Redundancy Check.	(2)
6)	Draw and explain structure of switch.	(3)
7)	Elaborate Frequency Shift Keying.	(3)
[OR] 8)	Elaborate Network Topology.	(3)
9)	Give the applications, advantages and disadvantages of the following i.Radio waves ii.Micro waves iii.Infrared waves iv.X-rays	(4)

v.Gamma rays

vi.Ultraviolet rays

vii.Visible light

10) Differentiate FDM and WDM. (5)

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