

Enrollment No.....



Faculty of Engineering
End Sem (Even) Examination May-2022
CS3CO28 Data Communication

Programme: B.Tech.

Branch/Specialisation: All

Duration: 3 Hrs.**Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

- Q.1 i. Which agency developed standards for physical connection interfaces and electronic signalling specifications? **1**
 (a) ISO (b) ITU-T (c) ANSI (d) EIA
- ii. A communication between a computer and a keyboard involves ____ transmission. **1**
 (a) Automatic (b) Half duplex
 (c) Simplex (d) Full duplex
- iii. Which of the following encoding methods does not provide for synchronization? **1**
 (a) RZ (b) NRZ-L (c) NRZ-I (d) Manchester
- iv. Why spread spectrum technique is inefficient for a single user? **1**
 (a) Large transmission bandwidth
 (b) Small transmission bandwidth
 (c) Fixed transmission bandwidth
 (d) Fixed null bandwidth
- v. A Virtual-Circuit Network is normally implemented in the **1**
 (a) Session layer (b) Data link layer
 (c) Network layer (d) Physical layer
- vi. High-bit-rate Digital Subscriber Line (HDSL) uses two twisted pairs to achieve **1**
 (a) Full-duplex transmission (b) Half-duplex transmission
 (c) Decoding (d) Encoding
- vii. Which layer is responsible for process-to-process delivery? **1**
 (a) Network layer (b) Transport layer
 (c) Session layer (d) Data link layer
- viii. Which one of the following protocol is not used in internet? **1**
 (a) HTTP (b) DHCP (c) DNS (d) None of these

- ix. The frames issued by the secondary station of HDLC, known as? **1**
 (a) Link (b) Command (c) Response (d) None of these
- x. In modulo-2 arithmetic, we use only ____ **1**
 (a) 1 and 2 (b) 0 and 2 (c) 0 and 1 (d) None of these
- Q.2 i. Differentiate baseband and broadband cables. **2**
 ii. Why digital communication systems are more resistant to channel noise than analog systems. **3**
 iii. Classify various types of transmission media explain any two of them in detail. **5**
- OR iv. List out and explain in brief various types of transmission impairments. **5**
- Q.3 i. Explain need of multiplexing in data communication systems. **2**
 ii. What is run length encoding? **2**
 iii. Explain direct sequence spread spectrum technique. **6**
- OR iv. Describe the generation of PN sequence. **6**
- Q.4 i. Define network topology and enlist its type. **2**
 ii. Differentiate between Packet Switching and Circuit Switching. What kind of networks you will advocate for the PSTN and Internet respectively **8**
- OR iii. Enlist different DSL technologies and explain them briefly. **8**
- Q.5 Attempt any two:
 i. What are the differences between a port address, a logical address and a physical address? **5**
 ii. Write a note on TCP/IP Reference model **5**
 iii. Give a comparative analysis of **5**
 (a) Active hub and Passive hub
 (b) Bridge and Gateway
- Q.6 Attempt any two:
 i. What is the similarity between PPP and HDLC? With a neat diagram explain the transition phases in a PPP connection. **5**
 ii. Write a note on hamming code with example. **5**
 iii. What is CRC? Explain CRC with example. **5**

P.T.O.

Marking Scheme

CS3CO28 Data Communication

Q.1	i.	Which agency developed standards for physical connection interfaces and electronic signalling specifications? (d) EIA	1
	ii.	A communication between a computer and a keyboard involves ____ transmission. (c) Simplex	1
	iii.	Which of the following encoding methods does not provide for synchronization? (b) NRZ-L	1
	iv.	Why spread spectrum technique is inefficient for a single user? (a) Large transmission bandwidth	1
	v.	A Virtual-Circuit Network is normally implemented in the (b) Data link layer	1
	vi.	High-bit-rate Digital Subscriber Line (HDSL) uses two twisted pairs to achieve (a) Full-duplex transmission	1
	vii.	Which layer is responsible for process-to-process delivery? (b) Transport layer	1
	viii.	Which one of the following protocol is not used in internet? (d) None of these	1
	ix.	The frames issued by the secondary station of HDLC, known as? (c) Response	1
	x.	In modulo-2 arithmetic, we use only____ (c) 0 and 1	1
Q.2	i.	Difference baseband and broadband cables 1 mark for each difference (1 mark * 2)	2
	ii.	Digital communication systems are more resistant to channel noise than analog systems. As per the explanation	3
	iii.	Classification various types of transmission media 3 marks Explanation of each 1 mark (1 mark *2) 2 marks	5
	OR iv.	Various types of transmission impairments List 2 marks Explanation with diagram 3 marks	5
Q.3	i.	Need of multiplexing in data communication systems.	2

OR	ii.	Run length encoding As per the explanation	2
	iii.	Direct sequence spread spectrum technique. Explanation 4 marks Diagram 2 marks	6
	iv.	Generation of PN sequence Explanation 4 marks Diagram 2 marks	6
	Q.4	i. Definition network topology 1 mark Enlist its type 1 mark ii. Difference between Packet Switching and Circuit Switching 6 marks	2 8
OR	iii.	Advocate for the PSTN and Internet 2 marks Enlist different DSL technologies 2 marks for each technology (2 marks * 4)	8
	Q.5	Attempt any two: i. Differences between a port address, a logical address and a physical address Definition 3 marks 2 differences 2 marks ii. TCP/IP Reference model As per the explanation iii. Give a comparative analysis of (a) Active hub and Passive hub 2.5 marks (b) Bridge and Gateway 2.5 marks	5 5 5
Q.6	i.	Attempt any two: Similarity between PPP and HDLC 2 marks Diagram 2 marks Transition phases in a PPP connection 1 mark ii. Hamming code 3 marks Example 2 marks iii. Explanation of CRC 3 marks Example 2 marks	5 5 5
