



Enrollment No.....

## Faculty of Engineering

End Sem (Even) Examination May-2019  
EC3EL02 / EI3EL02 Data Communication and

## Computer Network

Programme: B.Tech.

Branch/Specialisation: EC/EI

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 layer is also known as Internet layer? **1**  
 (a) Transport (b) Network  
 (c) Both (a) and (b) (d) None of these
- ii. Transmission Impairment defines **1**  
 (a) Noise (b) Attenuation  
 (c) Distortion (d) All of these
- iii. HDLC is a \_\_\_\_\_ **1**  
 (a) Byte oriented DLL protocol  
 (b) Byte oriented Network layer protocol  
 (c) Bit oriented DLL protocol  
 (d) Bit oriented Network Layer protocol
- iv. Sliding window protocol is used for **1**  
 (a) Routing (b) Flooding  
 (c) Flow control (d) Error control
- v. IPv4 defines \_\_\_\_\_ **1**  
 (a) 32 bit long address (b) 32 byte long address  
 (c) 128 bit address (d) 31 bit address
- vi. Bridges and Switches are \_\_\_\_\_ layer networking devices **1**  
 (a) 1 (b) 2 (c) 3 (d) 4
- vii. Choke packets are used for **1**  
 (a) Congestion control (b) Transmission control  
 (c) Traffic shaping (d) All of these
- viii. DNS stands for **1**  
 (a) Dynamic name server (b) Dynamic name System  
 (c) Domain name server (d) Domain name System
- ix. Fast Ethernet uses \_\_\_\_\_ physical topology **1**  
 (a) Bus (b) Star (c) Ring (d) Hybrid

- x. Ethernet is IEEE \_\_\_\_\_ standard **1**  
 (a) LAN (b) MAN (c) WAN (d) None of these

- Q.2 i. Explain Serial and Parallel transmission. **2**  
 ii. Four 1Kbps connections are multiplexed together. The unit is 1 **3**  
 bit. Find

- (a) Duration of 1 bit before multiplexing.  
 (b) Transmission rate of the link.  
 (c) Duration of time slot.  
 (d) Duration of frame.

- iii. Differentiate between OSI and TCP/IP reference model. **5**  
 OR iv. With a neat diagram explain Virtual circuit packet switching. **5**

- Q.3 i. Generate a CRC code for the dataword 110101010 using  $x^4+x^2+1$ . **3**  
 ii. Considering a window size of 4 explain selective repeat error **7**  
 control method with a flow diagram.

- OR iii. What is CSMA? What are the methods used by a station if it finds **7**  
 the channel is busy or idle? Explain them briefly.

- Q.4 i. For the given IP address 127.50.30.15 write **4**  
 (a) Mask  
 (b) Represent in CIDR notation  
 (c) Write in IPv6 format  
 (d) Find network id and host id

- ii. Explain various Internetworking devices. **6**  
 OR iii. Explain Link State Routing with suitable example. **6**

- Q.5 Attempt any two: **5**  
 i. Draw TCP segment Format (TCP header). **5**  
 ii. Discuss the techniques used to achieve good Quality of service. **5**  
 iii. Explain DNS. **5**

- Q.6 i. What 10BaseT signifies? **2**  
 ii. Give 802.3 MAC frame format. **3**  
 iii. Explain Physical layer of 802.11. **5**  
 OR iv. Explain various ATM layers **5**

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## Marking Scheme

### EC3EL02 / EI3EL02 Data Communication and Computer Network

Q.1	i.	Which layer is also known as Internet layer? (b) Network	1
	ii.	Transmission Impairment defines (d) All of these	1
	iii.	HDLC is a _____ (c) Bit oriented DLL protocol	1
	iv.	Sliding window protocol is used for (c) Flow control	1
	v.	IPv4 defines _____ (a) 32 bit long address	1
	vi.	Bridges and Switches are _____ layer networking devices (b) 2	1
	vii.	Choke packets are used for (a) Congestion control	1
	viii.	DNS stands for (d) Domain name System	1
	ix.	Fast Ethernet uses _____ physical topology (b) Star	1
	x.	Ethernet is IEEE _____ standard (a) LAN	1
Q.2	i.	Serial transmission. 1 mark	2
		Parallel transmission. 1 mark	
	ii.	(a) Duration of 1 bit before multiplexing. 0.5 mark	3
		(b) Transmission rate of the link. 1 mark	
		(c) Duration of time slot. 0.5 mark	
OR	iii.	Differentiate between OSI and TCP/IP reference model. At least five points 1 mark for each (1 mark * 5)	5
	iv.	Virtual circuit packet switching. Complete diagram with switching table 2 marks Three phases 1 mark each (1 mark * 3) 3 marks	5
Q.3	i.	Generate a CRC code for the dataword 110101010 using $x^4+x^2+1$ Generating divisor 1 mark Appending zeros 1 mark Correct division 1 mark	3

OR	ii.	Considering a window size of 4 explain selective repeat error control method with a flow diagram.	7
	iii.	CSMA 1 mark Persistant 2 marks Non persistant 2 marks P Persistence 2 marks	7
Q.4	i.	For the given IP address 127.50.30.15 write (a) Mask 1 mark (b) Represent in CIDR notation 1 mark (c) Write in IPv6 format 1 mark (d) Find network id and host id 1 mark	4
	ii.	Any six Internetworking devices. 1 mark for each (1 mark * 6)	6
OR	iii.	Link State Routing with example. Explanation 4 marks Diagram 2 marks	6
	Q.5	Attempt any two:	
	i.	Draw TCP segment Format (TCP header). Diagram 3 marks Explanation 2 marks	5
	ii.	Techniques used to achieve good Quality of service. 1 mark for each method (1 mark * 5)	5
	iii.	DNS. Diagram 2 marks Explanation 3 marks	5
Q.6	i.	10BaseT signifies	2
	ii.	Give 802.3 MAC frame format. 6 fields 0.5 mark for each (0.5 mark * 6)	3
	iii.	Physical layer of 802.11. BSS 2.5 marks ESS 2.5 marks	5
OR	iv.	Various ATM layers Layer diagram 1 mark Explanation 4 marks	5

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