Code No: **R1641043** **R16** **Set No. 1**

IV B.Tech I Semester Regular/Supplementary Examinations, March - 2021

COMPUTER NETWORKS

(Common to Electronics & Communication Engineering and Electronics & Instrumentation Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
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PART–A *(14 Marks)*

1.	a)	Define Network Topology. What is its significance.	[2]
	b)	Where do the Coaxial Cables are widely used?	[2]
	c)	List out the available detection methods.	[2]
	d)	Define pure ALOHA & Slotter ALOHA.	[3]
	e)	What are the responsibilities of network layer?	[2]
	f)	What is the sub network address if the destination address is 200.45.34.56 and the subnet mask is 255.255.240.0?	[3]

PART–B *(4x14 = 56 Marks)*

2.	a)	Do stack of layers reduce the design complexity of network. Explain with any one reference model.	[7]
	b)	Is distance an important scale to classify the network? Compare different types of networks.	[7]
3.	a)	With neat a sketch explain the principle of Twisted pair cables.	[7]
	b)	Explain the Nyquist and Shannon Limits.	[7]
4.	a)	State and explain Datalink protocols for noiseless and noisy channels.	[7]
	b)	What is Piggybacking? Explain one Bit sliding window protocol with an example.	[7]
5.	a)	Explain the differences between Persistent and Nonpersistent CSMA protocols of MAC sub layer.	[7]
	b)	What are the key differences between Fast Ethernet ,Gigabit Ethernet and 10-Gigabit Ethernet?	[7]
6.	a)	Explain how network layer controls the operation of the subnet. Discuss the design issues of the network layer.	[7]
	b)	Discuss about Traffic Throttling and Load Shedding.	[7]
7.	a)	With a neat sketch, explain the UDP header format.	[7]
	b)	Discuss about Message Transfer and Final Delivery.	[7]

Code No: **R1641043** **R16** **Set No. 2**

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COMPUTER NETWORKS

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Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
****

PART–A *(14 Marks)*

1. a) For 'n' devices in a network, what is the number of cable links required for a mesh and ring topology? [3]
   b) Mention the advantages of Sliding window protocol. [3]
   c) List the farming methods. [2]
   d) What are the advantages of Wireless LAN? [2]
   e) What is meant by switched virtual circuit? [2]
   f) Why is an application such as POP needed for electronic messaging? [2]

PART–B *(4x14 = 56 Marks)*

2. a) With a comparison, explain the reasons that TCP/IP internet layer is similar in functionality to the OSI network layer. [7]
   b) Which layer defines network topology? Explain different network topologies with a neat sketch. [7]

3. a) What are the different error detection techniques? How errors are detected using CRC. [7]
   b) What are the different classifications of Twisted pair cables? Explain. [7]

4. a) Explain about Simplex Stop-and-Wait Protocol. [7]
   b) Discuss about the 802.11 Physical Layer with neat sketch. [7]

5. a) Explain the concepts of Pure ALOHA and Slotted ALOHA. [7]
   b) What are the different Channel Allocation techniques? Explain. [7]

6. a) With an example explain Shortest path routing Algorithm in detail. [7]
   b) What is meant by congestion and explain the principles and Congestion prevention policies. [7]

7. a) What are the services provided by DNS server? Explain in detail. [7]
   b) Explain the differences between TCP and UDP. [7]

Code No: **R1641043** **R16** **Set No. 3**

IV B.Tech I Semester Regular/Supplementary Examinations, March - 2021

COMPUTER NETWORKS

(Common to Electronics & Communication Engineering and Electronics & Instrumentation Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
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PART–A *(14 Marks)*

1. a) What do you mean by OSI? [3]
   b) What is the significance of Multiplexing? What are the different types of Multiplexing techniques? [2]
   c) Consider a 32 bit block of data 11100111 11011101 00111001 10101001 that has to be transmitted. If Longitudinal Redundancy Check is used what is the transmitted bit stream? [2]
   d) What are the Wireless LAN Protocols? [2]
   e) What are the network support layers and the user support layers? [2]
   f) What is the difference between a user agent (UA) and a mail transfer agent (MTA)? [3]

PART–B *(4x14 = 56 Marks)*

2. a) Why OSI is called an open system inter connection? Explain the design issues of each layer in OSI model. [7]
   b) "LANs are distinguished from other kinds of networks by three characteristics" list and explain. [7]

3. a) Give brief explanation about twisted pair cables. [7]
   b) Differentiate between Frequency Division Multiplexing and Time Division Multiplexing. [7]

4. a) List the error detection techniques. Illustrate how to error detect for a frame 1101011011 with the generator $G(x) = x^4+x+1$ using CRC. [7]
   b) Discuss about A Simplex Stop and Wait Protocol for a Noisy Channel. [7]

5. a) What is Carrier Sense Multiple Access? What are the different approaches? [7]
   b) Discuss about the 805.11 Frame Structure-Services. [7]

6. a) Define the term Datagram. Compare and contrast virtual circuit and datagram subnets. [7]
   b) Discuss about Traffic Aware Routing. [7]

7. a) Is Transport layer an End – to – End layer? What are the services provided by the transport layer to the upper layers? [7]
   b) What are system daemons? Write about the architecture and services of Electronic Mail. [7]

Code No: **R1641043** **R16** **Set No. 4**

IV B.Tech I Semester Regular/Supplementary Examinations, March - 2021

COMPUTER NETWORKS

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Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
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PART–A *(14 Marks)*

1.	a)	Which layers of OSI are called chained layers?	[2]
	b)	What are the responsibilities of physical layer?	[2]
	c)	Mention the types of error correcting methods.	[2]
	d)	What are the assumptions for Dynamic Channel Allocation?	[2]
	e)	Compare connectionless service & connection oriented service.	[3]
	f)	Why TCP services are called Stream delivery services?	[3]

PART–B *(4x14 = 56 Marks)*

2.	a)	"Services, interfaces and protocols are three central concepts of the OSI model". Explain the statement with a comparison of the OSI and TCP/IP reference models.	[7]
	b)	Define a subnet? Discuss what principles are used to organize a subnet in WAN's.	[7]
3.	a)	Differentiate between Frequency Division Multiplexing and Code Division Multiplexing	[7]
	b)	What is framing? Explain the design issues of Data link layer.	[7]
4.	a)	Discuss sliding window protocol using Go Back N.	[7]
	b)	What kinds of errors can Vertical Redundancy check determine? What kinds of errors it cannot determine?	[7]
5.	a)	Explain the Services of 805.11 Frame Structure.	[7]
	b)	What are carrier sense protocols? Discuss collision – Free protocols implemented in MAC layer.	[7]
6.	a)	Compare Open loop Congestion Control & Closed loop congestion control.	[7]
	b)	Which layers of OSI deals with packet? Explain store and forward packet switching in detail.	[7]
7.	a)	Explain about User Datagram Protocol (UDP).	[7]
	b)	What is DNS? List and discuss Resource record entries in DNS.	[7]