Code No: RT32053 **R13** SET - 1

III B. Tech II Semester Regular Examinations, Feb-2018
COMPUTER NETWORKS
(Common to CSE and IT)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	Write about connection oriented service-reliable communication	[4M]
	b)	Explain circuit switching technology implementation in Telephone networks.	[3M]
	c)	With suitable example explain internet checksum.	[4M]
	d)	How to route the packets in virtual circuit subnets?	[4M]
	e)	Describe various access methods in standard Ethernet.	[4M]
	f)	What is URL? How it will be processed? Explain.	[3M]

PART –B

2	a)	Give the structure and working principle of WAN with virtual private networks and Internet Service Provider. And also explain its role in Internet.	[8M]
	b)	Write about peer-to-peer processes and encapsulation concepts in OSI model.	[8M]
3	a)	Describe the functional differences between statistical and synchronous time division multiplexing.	[8M]
	b)	With four switches draw the architecture of datagram networks and explain the data transfer between nodes.	[8M]
4	a)	Show the generation of codeword at the sender site and check the same at the receiver site using CRC where data word is 1010011010 and the deviser is 10111.	[8M]
	b)	"In Selective Repeat ARQ, the size of the sender and receiver window must be at most one-half of 2^m" justify the statement.	[8M]
5	a)	With example explain routing process in hierarchical routing.	[8M]
	b)	Explain all variations of "sense before transmit" methods used in multiple access.	[8M]
6	a)	What are the addressing mechanisms followed in IEEE802.11. How it solves hidden station and exposed station problem.	[8M]
	b)	Explain the MAC sub layer and physical layer specifications in high speed LAN.	[8M]
7		Explain the following with respect to HTTP	
	a	Operational Model	[6M]
	b	Request message format	[5M]
	c	Reply message format.	[5M]

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3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	Write the characteristics of Wide Area Networks.	[3M]
	b)	What are the design issues of physical layer?	[4M]
	c)	Differentiate the process of error correction and error detection in block coding.	[4M]
	d)	Write about the vulnerable time period in slotted ALOHA protocol.	[4M]
	e)	With an example explain variations of Manchester encoding.	[4M]
	f)	Explain the architecture of browser- server.	[3M]

PART –B

2	a)	Differentiate services, mechanisms and interfaces with respect to OSI and TCP/IP protocol suits.	[8M]
	b)	What is network hardware? Explain in detail with respect to transmission technology and scale of networks.	[8M]
3	a)	What is the difference between the routing process in datagram networks and in virtual circuit networks? Explain	[8M]
	b)	Write about the multiplexing and de-multiplexing process in frequency division multiplexing	[8M]
4	a)	What is sliding window? How it is used in noisy channels for error control.	[8M]
	b)	Write the sender site and receiver site algorithm for simplest protocol and stop and wait protocols.	[8M]
5	a)	Explain the optimality principle with respect to shortest path algorithm	[8M]
	b)	What is channelization? Explain any two channelization techniques.	[8M]
6	a)	Describe the architecture and physical layer specifications of f IEEE802.11 standard.	[8M]
	b)	Write the differences between bridged Ethernet, switched Ethernet and full duplex Ethernet.	[8M]
7	a)	In detail write about WAP protocol implementation for wireless Web.	[8M]
	b)	With neat sketch explain the formats of generic messages in HTTP. How security is provided for HTTP messages.	[8M]

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2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	Write about the original ARPANET design.	[3M]
	b)	Write short notes on frame synchronization in TDM.	[4M]
	c)	Differentiate character oriented and bit oriented protocols.	[4M]
	d)	Write a short notes on persistence methods	[4M]
	e)	Discuss the addressing mechanisms of wireless LANs.	[4M]
	f)	What is proxy server? How it is related to HTTP.	[3M]

PART –B

2	a)	Differentiate the following with respect to OSI Layers functionality i) Logical Address ii) Physical Address iii) Service Point address	[8M]
	b)	Describe different types of networks we encounter in the world today. And also differentiate point-to-point WAN and switched WAN.	[8M]
3	a)	What are different multiplexing techniques used for analog signals? Explain.	[8M]
	b)	Write the characteristics of virtual circuit networks and explain source to destination data transfer in it.	[8M]
4	a)	Show that the maximum window size in selective repeat is $2^n/2$ and go-back-n is 2^n-1, where n is the number of bits used for fame sequence number.	[8M]
	b)	How to determine the type of the frame in HDLC protocol? Explain with frame format.	[8M]
5	a)	What is random access? Explain how it can be achieved with pure ALOHA and slotted ALOHA.	[8M]
	b)	How to solve the problem of gigantic forwarding tables? Propose and explain some routing algorithms.	[8M]
6	a)	Explain frame format, addressing mechanisms and access methods in standard Ethernet.	[8M]
	b)	How to use handshaking mechanism to prevent hidden station and exposed station problem. Explain.	[8M]
7	a)	Differentiate static, dynamic and active documents used in World Wide Web.	[8M]
	b)	Explain various status codes used in HTTP protocol.	[8M]

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2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	Describe store and forward networks.	[3M]
	b)	What is the role of routing table in datagram networks?	[4M]
	c)	How to achieve flow control and error control in data link layer.	[4M]
	d)	What is the role of coding theory in code division multiplexing technique?	[4M]
	e)	Differentiate basic service set and extended service set.	[4M]
	f)	Write about various components of URL.	[3M]

PART –B

2	a)	With neat sketch discuss the functionalities of each layer in TCP/IP protocol suite.	[8M]
	b)	Write short notes on the Novel Netware architecture. How it helps in internet evolution?	[8M]
3	a)	What is virtual circuit identifier? How it is used in setup and tear down phases. Explain with suitable example.	[8M]
	b)	Explain how wavelength division multiplexing works. What are its advantages over other methods?	[8M]
4	a)	Explain the design and implementation of stop and wait protocol.	[8M]
	b)	Write about services, framing and multiplexing concepts of Point-Point Protocol.	[8M]
5	a)	Discuss the following: i) Broadcast Routing ii) Multicast Routing.	[8M]
	b)	What is multiple access control? Explain various protocols used to implement this.	[8M]
6	a)	Describe the architecture, MAC sub layer, addressing mechanisms of wireless LANs	[8M]
	b)	Write the physical layer specifications of fast Ethernet. How they are different from standard Ethernet.	[8M]
7	a)	Describe the operational model of HTTP protocol. Relate this with WWW and FTP.	[8M]
	b)	How to access information over a mobile through WAP? Explain its protocol design.	[8M]