

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 compulsory3. Answer any **THREE** Questions from **Part-B**

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 divisor 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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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 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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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 frame 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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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]