Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering

End Sem Examination May-2024

CB3CO12 Computer Networks

Programme: B.Tech. Branch/Specialisation: CSBS

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. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Q.1 i. Multiplexing provides _____. **1**

(a) Efficiency (b) Privacy

(c) Anti jamming (d) Both (a) and (b)

ii. Which network topology requires a central controller or hub? **1**

(a) Star (b) Mesh (c) Ring (d) Bus

iii. How error detection and correction is done? **1**

(a) By passing it through equalizer

(b) By passing it through filter

(c) By amplifying it

(d) By adding redundancy bits

iv. In _____, collisions are avoided through the use of three strategies: the interframe space, the contention window, and acknowledgments. **1**

(a) CSMA/CA (b) CSMA/CD

(c) Both (a) and (b) (d) None of these

v. In unicast routing, each router in the domain has a table that defines a _____ path tree to possible destinations. **1**

(a) Average (b) Longest (c) Shortest (d) Very longest

vi. Which one of the following protocol is used to resolve an IP address and Ethernet address? **1**

(a) WAN (b) ARP (c) ICMP (d) Logical lease

vii. The length of TCP header without option is- **1**

(a) 40 (b) 20 (c) 60 (d) None of these

viii. In QoS techniques, packets wait in a buffer (queue) until the node is ready to process them in **1**

(a) Out-of-Order Ones (b) First-in First out

(c) Last-in First-Out (d) First-in-Last-out

ix. In FTP protocol, client contacts server using _____ as the transport protocol. **1**
(a) TCP
(b) UDP
(c) Both (a) and (b)
(d) None of these

x. What is the primary purpose of a firewall? **1**
(a) To increase network speed
(b) To block all incoming traffic
(c) To monitor and control network traffic
(d) To provide secure access to the internet

Q.2 i. How TDM is different from FDM? Give suitable example for that. **2**
ii. What is the importance of layered architecture in computer network? **3**
iii. Differentiate the OSI and TCP/IP model with diagram. **5**
OR iv. Explain network topology with example. **5**

Q.3 Attempt any two:
i. What is Go-Back N protocol? How it differs from selective repeat? **5**
ii. Differentiate the pure aloha and slotted aloha. **5**
iii. In a CSMA / CD network running at 1 Gbps over 1 km cable with no repeaters, the signal speed in the cable is 200000 km/sec. What is minimum frame size? **5**

Q.4 Attempt any two:
i. Why DHCP is used? How it differs from RARP and BOOTP? **5**
ii. Draw and explain the header format of IPv4. **5**
iii. Given IP Address – 172.16.0.0/25. **5**
find the-
(a) Number of subnets
(b) Number of hosts per subnet
(c) For the first subnet block, find the subnet address, first host ID, last host ID, and broadcast address

Q.5 i. Draw the UDP header format. Why UDP is unreliable? **4**
ii. Explain connection establishment and connection release using three way handshaking in transport layer. **6**
OR iii. Explain token bucket algorithm with diagram. What is the use of this algorithm? **6**

Q.6 Attempt any two:
i. How DNS is different from DDNS? Explain its working **5**
ii. What is FTP protocol? Explain it's types of connection in detail. **5**
iii. Write short note on – **5**
(a) SNMP (b) Cryptography

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Scheme of Marking
Computer Networks-CB3CO12(T)

Q.1	i)	Multiplexing provides _____ (a) Efficiency	**1**
	ii)	Which network topology requires a central controller or hub? (a) Star	**1**
	iii)	How error detection and correction is done? (d) By adding redundancy bits	**1**
	iv)	In _____, collisions are avoided through the use of three strategies: the interframe space, the contention window, and acknowledgments. (a) CSMA/CA	**1**
	v)	In unicast routing, each router in the domain has a table that defines a …… path tree to possible destinations. (c) shortest	**1**
	vi)	Which one of the following protocol is used to resolve an IP address and Ethernet address? (b) ARP	**1**
	vii)	The length of TCP header without option. (b) 20	**1**
	viii)	In QoS techniques, packets wait in a buffer (queue) until the node is ready to process them in (b) First-in First out	**1**
	ix)	In FTP protocol, client contacts server using ____ as the transport protocol. (a) TCP	**1**
	x)	What is the primary purpose of a firewall? (c) To monitor and control network traffic (d) To provide secure access to the internet	**1**
Q.2	i.	How TDM is different from FDM, give suitable example for that? – 2 mark	**2**
	ii.	What is the importance of layered architecture in Computer Network?- 3 mark 1 mark for each importance	**3**
	iii.	Differentiate the OSI and TCP/IP model?- 1 mark for each point	**5**
OR	iv.	Explain Network topology with type and example? – 1 mark for each type	**5**
Q.3	i.	What is Go-Back N protocol- 3 mark how it differ from selective repeat?- 2 Mark	**5**
	ii.	Differentiate the pure aloha and slotted aloha.- 1 mark for each difference	**5**
OR	iii.	In a CSMA / CD network running at 1 Gbps over 1 km cable with no repeaters, the signal speed in the cable is 200000 km/sec. What is minimum frame size? – 5 marks	**5**
Q.4	i.	Why DHCP is used? – 2 mark How it is differ from RARP and BOOTP?- 3 mark	**5**
	ii.	Draw and explain the header format of IPV4 -2 mark for format and 3 mark for explaination	**5**
OR	iii.	Given IP Address – 172.16.0.0/25.find the 1. Number of subnets- 512 1 mark 2. Number of hosts per subnet- 125 1 mark 3. For the first subnet block, find the subnet address, first host ID, last host ID, and broadcast address.- 3 mark first subnet block - 172.16.0.1 – 172.16.0.127 subnet address - 255.255.255.128 first host ID - 172.16.0.1 / 172.16.0.2 last host ID - 172.16.0.126 broadcast address- 172.16.0.127	**5**
Q.5	i.	Draw the UDP header format.-2 mark UDP is unreliable why?- 2 mark	**4**
	ii.	Explain connection establishment- 3 mark and connection release using three way handshaking in transport layer.- 3 mark	**6**
OR	iii.	Explain token bucket algorithm with diagram- 4 mark, for what purpose it is used ?- 2 mark	**6**
Q.6		Attempt any two:	
	i.	How DNS is different from DDNS?- 2 mark Explain the working in detail- 3 mark	**5**
	ii.	What is FTP protocol?- 2 mark explain the connection type in detail- 3 mark	**5**
	iii.	Write short note on – 1. SNMP- 2.5 mark 2. Cryptography- 2.5 mark	**5**

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