

Enrollment No.....



Faculty of Engineering
End Sem (Odd) Examination Dec-2019
CS3CO12 Computer Networks

Programme: B.Tech.

Branch/Specialisation: CS

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. The portion of physical layer that interfaces with the media access control sublayer is called **1**
 (a) Physical signalling sublayer
 (b) Physical data sublayer
 (c) Physical address sublayer
 (d) None of these
- ii. Automatic repeat request error management mechanism is provided by **1**
 (a) Logical link control sublayer
 (b) Media access control sublayer
 (c) Network interface control sublayer
 (d) None of these
- iii. In virtual circuit network each packet contains **1**
 (a) Full source and destination address
 (b) A short VC numbers
 (c) Only source address
 (d) Only destination address
- iv. A subset of a network that includes all the routers but contains no loops is called **1**
 (a) Spanning tree (b) Spider structure
 (c) Spider tree (d) None of these
- v. User datagram protocol is called connectionless because **1**
 (a) All UDP packets are treated independently by transport layer
 (b) It sends data as a stream of related packets
 (c) It is received in the same order as sent order
 (d) None of these

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- vi. An endpoint of an inter-process communication flow across a computer network is called **1**
 (a) Socket (b) Pipe (c) Port (d) None of these
- vii. Packet of the same session may be routed through different paths in: **1**
 (a) TCP but not UDP (b) TCP and UDP
 (c) UDP but not TCP (d) Neither TCP nor UDP
- viii. In the slow start phase of the TCP congestion control algorithm, the size of the congestion window **1**
 (a) Does not increase (b) Increases linearly
 (c) Increases quadratically (d) Increases exponentially
- ix. Which among the below mentioned protocols provides a mechanism of acquiring an IP address without manual intervention in addition to plug and play type of networking? **1**
 (a) BOOTP (b) DHCP
 (c) Both (a) and (b) (d) None of these
- x. Which of the following is an application layer service? **1**
 (a) Network virtual terminal
 (b) File transfer, access, and management
 (c) Mail service
 (d) All of these
- Q.2 i. What is meant by error detection and correction? Explain it with certain examples. **4**
 ii. Explain the different types of cables required for networks. Make a brief comparison between them. **6**
- OR iii. Draw and explain the frame format of IEEE 802.3 Standard. **6**
- Q.3 i. What is meant by routing protocol? Write the difference between distance vector routing and link state routing protocol **4**
 ii. What are some weaknesses of packet-filtering router? What is an application level gateway and circuit level gateway? Explain. **6**
- OR iii. Explain leaky bucket and token bucket approaches of the traffic shaping. How these techniques help to achieve certain QoS parameters? Explain. **6**
- Q.4 i. Draw and explain ARP packet format. How will you find the size of an ARP packet if the protocol is IP and hardware is Ethernet? Explain. **4**

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- ii. Exactly how many class A, B and C network can exist? Exactly how many hosts can a network in each class have? Be careful to allow for broadcast as well as class D and E addresses. **6**
- OR iii. An organization is granted the block 164.25.25.192/26. The organization needs eight subnets. Determine the following: **6**
 (a) Subnet id of each subnet.
 (b) First and last host address of each subnet.
 (c) What is the prefix length of each subnet?
- Q.5 i. What is count-to-infinity problem? Explain one algorithm which suffers from this problem. **4**
 ii. With neat sketch explain connection establishment and connection release using three -way handshaking in transport layer. **6**
- OR iii. Explain the difference between TCP, IP and UDP in detail with certain examples. **6**
- Q.6 i. What is meant by network management? Explain the instruments supporting network management. **4**
 ii. What is HTTP? Why is HTTP known as stateless protocol? Describe any three HTTP commands. **6**
- OR iii. What is meant by application server? Differentiate it from web server. Explain it with certain examples. **6**

Marking Scheme

CS3CO12 Computer Networks

Q.1	i.	The portion of physical layer that interfaces with the media access control sublayer is called	1
		(a) Physical signalling sublayer	
	ii.	Automatic repeat request error management mechanism is provided by	1
		(a) Logical link control sublayer	
	iii.	In virtual circuit network each packet contains	1
		(b) A short VC numbers	
	iv.	A subset of a network that includes all the routers but contains no loops is called	1
		(a) Spanning tree	
	v.	User datagram protocol is called connectionless because	1
		(a) All UDP packets are treated independently by transport layer	
	vi.	An endpoint of an inter-process communication flow across a computer network is called	1
		(a) Socket	
	vii.	Packet of the same session may be routed through different paths in:	1
		(b) TCP and UDP	
	viii.	In the slow start phase of the TCP congestion control algorithm, the size of the congestion window	1
		(d) Increases exponentially	
	ix.	Which among the below mentioned protocols provides a mechanism of acquiring an IP address without manual intervention in addition to plug and play type of networking?	1
		(b) DHCP	
	x.	Which of the following is an application layer service?	1
		(d) All of these	
Q.2	i.	Error detection with examples	2 marks
		Correction with examples.	2 marks
	ii.	Different types	(1 mark*6)
OR	iii.	Frame format	3 marks
		Explanation	3 marks
Q.3	i.	Routing protocol	1 mark
		Distance vector routing	1.5 marks
		Link state routing protocol	1.5 marks

	ii.	Some weaknesses of packet-filtering router	2 marks	6
		Application level gateway	2 marks	
		Circuit level gateway	2 marks	
		Explanation	2 marks	
OR	iii.	Leaky bucket	2 marks	6
		Token bucket	2 marks	
		Explanation	2 marks	
Q.4	i.	Packet format	2 marks	4
		Explanation	2 marks	
	ii.	How many Class A, B and C network can exist	2 marks	6
		Hosts can a network in each class have? Be careful to allow for broadcast as well as class D and E addresses.	4 marks	
OR	iii.	An organization is granted the block 164.25.25.192/26. The organization needs eight subnets. Determine the following:		6
		(a) Subnet id of each subnet.	2 marks	
		(b) First and last host address of each subnet.	2 marks	
		(c) What is the prefix length of each subnet	2 marks	
Q.5	i.	Count-to-infinity problem	2 marks	4
		Algorithm	2 marks	
	ii.	Connection establishment		
		Diagram	1 mark	
		Theory	2 marks	6
		Connection release		
		Diagram	1 mark	
		Theory	2 marks	
OR	iii.	Difference between TCP, IP and UDP	(2 mark*3)	6
		If difference point 6 then-	(1 mark*6)	
Q.6	i.	Network management (Definition)	2 marks	4
		Explanation the instruments	2 marks	
	ii.	HTTP	1 marks	
		HTTP known as stateless protocol	2 marks	
		Any three HTTP commands.	3 marks	6
OR	iii.	Application server	2 marks	
		Difference	3 marks	
		Example	1 mark	
