

Total No. of Questions: 6

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Enrollment No.....



Faculty of Engineering
End Sem (Odd) Examination Dec-2018
IT3CO10 Computer Networks

Programme: B.Tech.

Branch/Specialisation: IT

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. Which is the only layer of OSI layer that prevents itself from adding its own header to the data during the data transmission process? 1
 - (a) Application layer
 - (b) Network layer
 - (c) Physical layer
 - (d) None of these
 - ii. Two devices are in network if 1
 - (a) A process in one device is able to exchange information with a process in another device
 - (b) A process is running on both devices
 - (c) PIDs of the processes running of different devices are same
 - (d) None of these
 - iii. Automatic repeat request error management mechanism is provided by 1
 - (a) Media access control sublayer
 - (b) Logical link control sublayer
 - (c) Network interface control sublayer
 - (d) None of these
 - iv. The technique of temporarily delaying outgoing acknowledgements so that they can be hooked onto the next outgoing data frame is called 1
 - (a) Cyclic redundancy check
 - (b) Piggybacking
 - (c) Fletcher's checksum
 - (d) None of these

P.T.O.

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- v. In Carrier Sense Multiple Access/Collision Detection (CSMA/CD), we do not send entire frame and then look for a
(a) Signal (b) Collision (c) Delay (d) Station **1**
- vi. What is start frame delimiter (SFD) in ethernet frame? **1**
(a) 10101010 (b) 10101011 (c) 00000000 (d) 11111111
- vii. Given the IP address of 172.16.1.1 with a mask of 255.255.255.0-
How many total subnets could be created? (assume all subnets use
the same subnet mask) **1**
(a) 65536 (b) 254 (c) 256 (d) 64
- viii. ICMP is primarily used for **1**
(a) Error and diagnostic functions
(b) Addressing
(c) Forwarding
(d) None of these
- ix. Which one of the following is a transport layer protocol? **1**
(a) Stream control transmission protocol
(b) Transmission control protocol
(c) Both (a) and (b)
(d) None of these
- x. Which of the following layers of the OSI model is concern with **1**
the syntax of data exchanged between application entities?
(a) Application Layer (b) Presentation Layer
(c) Transport Layer (d) Network Layer
- Q.2 i. What is computer network? Write down its application in brief. **2**
ii. Discuss different topologies available in computer network. **3**
iii. Describe ISO-OSI model in detail. **5**
- OR iv. Describe TCP/IP model in detail. **5**
- Q.3 i. What are the design issues of data link layers? Discuss in brief. **2**
ii. What is framing? Why it is needed? Discuss 3 framing techniques **8**
in brief.
- OR iii. What is sliding window protocol? Discuss Go back N and **8**
selective repeat with suitable example.

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- Q.4 i. What is ALOHA? Differentiate pure aloha vs slotted aloha. **3**
ii. Consider building a CSMA/CD network running at 1 Gbps over a **7**
1 km cable with no repeaters. The signal speed in the cable is
200000km/sec. What is the minimum frame size?
- OR iii. Discuss 802.3, 802.4 and 802.5 in detail. **7**
- Q.5 i. Given the IP Address 172.54.09.94 and subnet mask **4**
255.255.128.0. Find
(a) No. of Subnet (b) No. of host/subnet
(c) Subnet Address (d) Range of IP Address
(e) Broadcast Address
- ii. Discuss the ARP and RARP protocols with packet format. **6**
- OR iii. What is IPv4? Discuss its format in detail. **6**
- Q.6 Attempt any two:
i. Discuss the functionality of transport layer. What is process to **5**
process delivery?
ii. What is the role of presentation and session layer in computer **5**
network?
iii. What is FTP? Why it is used in computer network? How it works? **5**

Marking Scheme
IT3CO10 Computer Networks

Q.1	i.	Which is the only layer of OSI layer that prevents itself from adding its own header to the data during the data transmission process? c) Physical layer	1
	ii.	Two devices are in network if (a) A process in one device is able to exchange information with a process in another device	1
	iii.	Automatic repeat request error management mechanism is provided by (b) Logical link control sublayer	1
	iv.	The technique of temporarily delaying outgoing acknowledgements so that they can be hooked onto the next outgoing data frame is called (b) piggybacking	1
	v.	In Carrier Sense Multiple Access/Collision Detection (CSMA/CD), we do not send entire frame and then look for a (b) Collision	1
	vi.	What is stat frame delimiter (SFD) in ethernet frame? b) 10101011	1
	vii.	Given the IP address of 172.16.1.1 with a mask of 255.255.255.0- -How many total subnets could be created? (assume all subnets use the same subnet mask) (c) 256	1
	viii.	ICMP is primarily used for (a) error and diagnostic functions	1
	ix.	Which one of the following is a transport layer protocol? (c) Both a and b	1
	x.	Which of the following layers of the OSI model is concern with the syntax of data exchanged between application entities? (b) Presentation Layer	1
Q.2	i.	What is computer network? Write down its two application in brief. Definition 1 mark 2 applications $\frac{1}{2}$ mark each 1 mark	2
	ii.	Discuss different topologies available in computer network. 6 topologies --- $\frac{1}{2}$ mark each (0.5 mark* 6)	3
	iii.	Describe ISO-OSI model in brief with suitable diagram.	5

		Diagram	1.5 marks.	
		Description of 7 layers ($\frac{1}{2}$ mark each layer)	3.5 marks	
OR	iv.	Describe TCP/IP model in detail with diagram. For each Layer – 1 mark	(1 mark *5)	5
Q.3	i.	What are the design issues of data link layers? Discuss in brief. For design issues – $\frac{1}{2}$ mark. For brief description	0.5 mark 1.5 marks.	2
	ii.	What is framing? Why it is needed? Discuss 3 framing techniques in brief. Framing Definition: Need: 3 techniques:	2 marks 3 marks 3 marks	8
OR	iii.	What is sliding window protocol? Discuss Go back N and selective repeat with suitable example. Sliding window protocol: Go back N: Selective repeat:	2 marks 3 marks 3 marks	8
Q.4	i.	What is ALOHA? Differentiate pure aloha vs slotted aloha. Definition: Difference (at least 2):	1 mark 2 marks	3
	ii.	Consider building a CSMA/CD network running at 1 Gbps over a 1 km cable with no repeaters. The signal speed in the cable is 200000km/sec. What is the minimum frame size? Step wise marking		7
OR	iii.	Discuss 802.3, 802.4 and 802.5 in detail. Description of 802.3 (Ethernet): Description of 802.4 (Token Bus): Description of 802.5 (Token Ring):	3 marks 2 marks 2 marks	7
Q.5	i.	Given the IP Address 172.54.09.94 and subnet mask 255.255.128.0 Find (a) No. of Subnet (b) No. of host/subnet (c) Subnet Address (d) Range of IP Address (e) Broadcast Address	$\frac{1}{2}$ mark $\frac{1}{2}$ mark 1 mark 1 mark 1 mark	4
	ii.	Discuss the ARP and RARP protocols with packet format. ARP Packet format	2 marks	6

	Description of field	1 mark	
	RARP Packet format	2 marks	
	Description of field	1 mark	
OR	iii. What is IPv4? Discuss its format in detail.		6
	IPv4 Definition:	1 mark	
	Packet format:	3 marks	
	Description of field:	2 marks	
Q.6	Attempt any two:		
	i. Discuss the functionality of transport layer. What is process to process delivery?		5
	Functionality:	3 Marks	
	Process to process delivery:	2 marks	
	ii. What is the role of presentation and session layer in computer network?		5
	Presentation layer:	2.5 marks	
	Session layers:	2.5 marks	
	iii. What is FTP? Why it is used in computer network? How it works?		5
	FTP definition:	1 mark	
	Uses:	2 marks	
	Working:	2 marks	
