

Bangabandhu Sheikh Mujibur Rahman Science and Technology University
Department of Computer Science and Engineering
3rd Year 1st Semester B.Sc. Engineering Examination-2014

Course No: CSE312

Course Title: Computer Networks

Full Marks: 70

Time: 4 hours

N.B.

- i) Answer **SIX** questions, taking any **THREE** from each section.
- ii) All questions are of equal values.
- iii) Use separate answer script for each section.

	(c)	<p>Show the forwarding process if a packet arrives at R1 in the following figure 1 with the destination address 201.4.22.35.</p>	3
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SECTION-B

Q.5	(a)	What do you know by packet switching and circuit switching? What are the advantages and disadvantages of Packet Switching and Circuit Switching?	5
	(b)	Draw the UDP packets format and briefly describe each part of UDP header.	4
	(c)	We would like to send a file of 1.28 Mega bits from Host A to Host B over a circuit switched network. Suppose that all links in the network use TDM with 12 slots and have a bit rate of 1.536 Mbps. Here circuit-to-circuit connection established time is 1s. How long does it take to send the file?	$2^{2/3}$
Q.6	(a)	When a host makes a DNS query, the query is sent to the local DNS server, which acts a proxy, forwarding the query into the DNS server hierarchy. Discuss the procedure with appropriate figure.	4
	(b)	Explain different types of geographical routing protocol.	4
	(c)	What are the differences between persistent and non-persistent HTTP?	$3^{2/3}$
Q.7	(a)	Write short note on Wireless Mesh Network.	3
	(b)	A slotted ALOHA network transmits 200-bit frames on a shared channel of 200 kbps. What is the throughput if the system (all stations together) produces <ul style="list-style-type: none"> i. 1000 frames per second ii. 500 frames per second iii. 250 frames per second. 	3
	(c)	Suppose a station on a wireless ALOHA network are a maximum of 600 km apart. If we assume that signals propagate at 3×10^8 m/s, What is the value of TB for different values of K.	3
	(d)	What is meant by SMTP? Discuss a procedure where Alice sends message to Bob by SMTP.	$2^{2/3}$
Q.8	(a)	How we can detect error by checksum? Explain it with an appropriate example.	$4^{2/3}$
	(b)	Find the chips for a network with <ul style="list-style-type: none"> i. Two stations ii. Four stations iii. Eight stations 	4
	(c)	In CDMA/CD network with a data rate of 10Mbps, the minimum frame size is found to be 512 bits for the correct operation of the collision detection process. What should be the minimum frame size if we increase the data rate to <ul style="list-style-type: none"> i. 100 Mbps? ii. 1 Gbps? iii. 10 Gbps? 	3

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SECTION-A		
Q.1	(a)	What do you mean by OSI Model? Briefly describe each layer of OSI model. 6
	(b)	An organization is granted the block 211.17.180.0/24. The administrator wants to create 32 subnets. i. Find the subnet mask. ii. Find the number of addresses in each subnet. iii. Find the first and the last address in the first subnet. iv. Find the first and the last address in the last subnet (subnet 32). 4
	(c)	What is subnetting? 1 ^{2/3}
Q.2	(a)	Describe different levels of addressing in TCP/IP protocols with an example. 4
	(b)	An ISP is granted a block of addresses starting with 190.100.0.0/16. The ISP needs to distribute these addresses to three groups of customers as follows: i. The first group has 20 customers: each needs 256 addresses. ii. The second group has 20 customers: each needs 128 addresses. iii. The third group has 20 customers: each needs 64 addresses. Design the subblocks and find out how many addresses are still available after these allocation. 6
	(c)	What is superneting? 1 ^{2/3}
Q.3	(a)	What are the general functions of Router? What are fundamental differences between routing and forwarding? 5
	(b)	What is ATM? Draw the architecture of ATM network? 2 ^{2/3}
	(c)	How can we sent a message from network address A to the following network addresses. i. Network address P and Physical address 95 ii. Network address M and Physical address 70 Describe source and destination network and physical addresses at each step. 4
Q.4	(a)	Why we need data compression? Briefly Describe different data compression methods 5 ^{2/3}
	(b)	Find the first and last addresses of the following address i. 23.56.7.91 ii. 132.6.17.85 iii. 201.180.56.5/21 3