

## Model Question Paper-1 with effect from 2019-20 (CBCS Scheme)

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### Fifth Semester B.E. Degree Examination Computer Networks and Security

TIME: 03 Hours

Max. Marks: 100

Note: 01. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.

Module – 1			
<b>Q.1</b>	(a)	Consider an e-commerce site that wants to keep a purchase record for each of its customers. <b>Describe</b> how this can be done with cookies.	<b>10M</b>
	(b)	<b>Describe</b> in detail the services provided by DNS and Explain the DNS message format.	<b>10M</b>
<b>OR</b>			
<b>Q.2</b>	(a)	Suppose Alice, with a Web based E-mail account (such as hotmail or Gmail), and sends a message to Bob, who accesses his mail from his mail server using POP3. <b>Discuss</b> how the message gets from Alice's host to Bob's Host. (Be sure to list the series of application layers protocols that are used to move the message between the two hosts.)	<b>07M</b>
	(b)	<b>What</b> are the advantages and disadvantages of mesh and circular DTH?	<b>08M</b>
	(c)	<b>Explain</b> in detail the General format of an HTTP request message.	<b>05M</b>
<b>Module – 2</b>			
<b>Q.3</b>	(a)	With the help of FSM, <b>describe</b> the two states of the sender side and one state of the receiver side of rdt2.0.	<b>10M</b>
	(b)	Suppose that the five measured Sample RTT values are 106ms, 120ms, 140ms, 90ms, and 115ms. <b>Compute</b> : (i) Estimated RTT after each of these Sample RTT value is obtained. Assume $\alpha = 0.125$ and estimated RTT is 100ms just before the first of these five samples were obtained. (ii) Compute DevRTT. Assume $\beta = 0.25$ and DevRTT wasw 5ms just before the first of these five samples was obtained.	<b>10M</b>
<b>OR</b>			
<b>Q.4</b>	(a)	<b>Describe</b> the various fields of UDP segment. Explain how checksum is calculated.	<b>08M</b>
	(b)	With a neat diagram, <b>explain</b> congestion control frame work for ATM-ABR service.	<b>07M</b>
	(c)	How two TCP connections share a single bottleneck link? <b>Explain</b> .	<b>05M</b>
<b>Module – 3</b>			
<b>Q.5</b>	(a)	<b>Explain</b> the implementation of virtual-circuit services in a computer network.	<b>07M</b>

	(b)	<b>Compare</b> and contrast IPv4 and IPv6 header fields. Do they have any fields in common. Explain.	<b>05M</b>
	(c)	<b>Explain</b> Distance vector algorithm using three nodes network.	<b>08M</b>
<b>OR</b>			
<b>Q.6</b>	(a)	<b>What</b> are the roles played by the IGMP protocol and wide area Multicast routing protocol?	<b>08M</b>
	(b)	<b>Illustrate</b> Routing Information Protocol (RIP) with suitable diagram	<b>08M</b>
	(c)	<b>Explain</b> 4 types of hierarchical OSPF routers	<b>04M</b>
<b>Module – 4</b>			
<b>Q.7</b>	(a)	<b>Explain</b> public key cryptography protocols.	<b>10M</b>
	(b)	Assume that in round 4 of a DES process for a message, $L_4=4de5635d$ (in Hex), $R_4 = 3412a90e$ (in Hex) and $K_5 = be1142 7e6ac2$ (in Hex). <b>Find</b> $R_5$ and $L_5$ .	<b>10M</b>
<b>OR</b>			
<b>Q.8</b>	(a)	In the Diffie-Hillman key exchange protocol, <b>prove</b> that the two keys $k_1$ and $k_2$ are equal.	<b>10M</b>
	(b)	Discuss the following: (i) Secure Hash Algorithm (ii) Firewalls	<b>10M</b>
<b>Module – 5</b>			
<b>Q.9</b>	(a)	<b>Explain</b> briefly how DNS redirects a users request to a CDN server	<b>10M</b>
	(b)	With a neat diagram <b>explain</b> the naïve architecture for audio/video streaming	<b>10M</b>
<b>OR</b>			
<b>Q.10</b>	(a)	Write a short notes on (i) Netflix video streaming platform (ii) VoIP with Skype	<b>10M</b>
	(b)	With a neat diagram <b>explain</b> the RTP header fields	<b>10M</b>

Table showing the Bloom's Taxonomy Level, Course Outcome and Programme Outcome				
Question		Bloom's Taxonomy Level attached	Course Outcome	Programme Outcome
Q.1	(a)	L2	CO1	PO1
	(b)	L2	CO1	PO1
Q.2	(a)	L2	CO1	PO2
	(b)	L1	CO1	PO1
	(c)	L1	CO1	PO1
Q.3	(a)	L2	CO2	PO1
	(b)	L3	CO2	PO3
Q.4	(a)	L1	CO2	PO2
	(b)	L2	CO2	PO1
	(c)	L2	CO2	PO1
Q.5	(a)	L2	CO3	PO2
	(b)	L2	CO3	PO1
	(c)	L2	CO3	PO1
Q.6	(a)	L1	CO3	PO8
	(b)	L3	CO3	PO8
	(c)	L2	CO3	PO1
Q.7	(a)	L2	CO4	PO8
	(b)	L3	CO4	PO4,PO8
Q.8	(a)	L2	CO4	PO2
	(b)	L1	CO4	PO1
Q.9	(a)	L2	CO5	PO1
	(b)	L2	CO5	PO1
Q.10	(a)	L1	CO5	PO1
	(b)	L2	CO5	PO1
Bloom's Taxonomy Levels	<b>Lower order thinking skills</b>			
	Remembering( knowledge): $L_1$	Understanding Comprehension): $L_2$	Applying (Application): $L_3$	
	<b>Higher order thinking skills</b>			
	Analyzing (Analysis): $L_4$	Valuating (Evaluation): $L_5$	Creating (Synthesis): $L_6$	

