P P SAVANI UNIVERSITY

Fifth Semester of B. Tech. Examination

December 2022

SECE3011 Computer Networks

02.12.2022, Friday **Time: 10:00 a.m. To 12:30 p.m.** **Maximum Marks: 60**

Instructions:

1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

SECTION – I

			CO	BTL
Q - 1	Answer the following(Any Five)	**[05]**		
(i)	Explain Full Duplex with suitable example.		**1**	**1**
(ii)	Assume 5 devices are arranged in mesh topology, how many cables are needed?		**1**	**4**
(iii)	Name three types of transmission impairment.		**1**	**1**
(iv)	Hamming Code is used to detect and correct _____ bit(s) error. A. One B. Two C. Four D. Any		**2**	**2**
(v)	What is length of MAC Address? A. 48-bit B. 32-bit C. 128-bit D. 64-bit		**2**	**2**
(vi)	What is the vulnerable time of slotted ALOHA?		**2**	**5**
(vii)	_____ Command is used to get the IP address of the system in Windows.		**2**	**3**
Q - 2 (a)	Draw TCP/IP model. Explain the functionality of each layer in brief.	**[05]**	**2**	**1**
Q - 2 (b)	Draw the flow-chart of stop and wait ARQ for following scenario: (a) Frame 0 is sent but lost. (b) Frame 0 is sent and acknowledged. (c) Frame 1 is sent and acknowledged but the acknowledgement is lost. (d) Frame 1 is resent and acknowledged.	**[05]**	**3**	**3**
	OR			
Q - 2 (a)	Explain Mesh and Star Topology with Advantage and Disadvantage.	**[05]**	**1**	**1**
Q - 2 (b)	Four 1-kbps connections are multiplexed together using TDM (Time Division Multiplexing). A unit is 1 bit. Find (a) the duration of 1 bit before multiplexing, (b) the transmission rate of the link, (c) the duration of a time slot, and (d) the duration of a frame	**[05]**	**2**	**3**
Q - 3 (a)	Calculate the bit rate and signal level for 1 MHz bandwidth channel. Assume that signal to noise ratio is 63.	**[05]**	**3**	**5**
Q - 3 (b)	Write a short note on CSMA/CD procedure.	**[05]**	**2**	**1**
	OR			
Q - 3 (a)	Generate the CRC for Data Word: 1001 and divisor 1011. How receiver will check the CRC?	**[05]**	**3**	**5**
Q - 3 (b)	Write a short note on CSMA/CA procedure.	**[05]**	**2**	**1**
Q - 4	What is the need of Medium Access Sublayer? Categorize the various Multiple Access Protocols and explain any one.	**[05]**	**2**	**2**

SECTION – II

Q - 1	Answer the following (Any Five)	[05]		
(i)	What is the size of IPv6 address?		1	2
(ii)	What is the initial value of Walsh Table W1?		1	1
(iii)	Find the class of address: 11000001 10000011 00011011 11111111.		1	4
(iv)	What is Default mask for Class A address?		2	2
	A. 255.0.0.0 B. 255.255.0.0 C. 255.255.255.0 D. None			
(v)	Which of the following is connectionless protocol?		3	1
	A. UDP B. TCP C. Both (A) & (B) D. None			
(vi)	Example of user agents for e-mail is		3	3
	A. Microsoft Outlook B. Apple Mail C. Firefox D. None of the above			
(vii)	Find the error, if any, in the given IPv4 address : 75.45.30.14.21		2	4
Q - 2 (a)	Explain the various types of classes used in classful addressing scheme of network layer.	[05]	2	1
Q - 2 (b)	A block of addresses is granted to a small organization. We know that one of the addresses is 205.16.37.39/25. What is the first address in the block? What is the last address in the block? What are the total numbers of addresses in the block?	[05]	3	3
	OR			
Q - 2 (a)	Explain the Header Format of IP Protocol.	[05]	3	1
Q - 2 (b)	For a given class B network 144.155.0.0 with default subnet mask, how can you divide it into 8 equal subnets? How many hosts can be accommodated in each sub-network? What is the first address (subnet address) and last address (broadcast address) of each sub-network?	[05]	3	3
Q - 3 (a)	What are the responsibilities of Transport layer? Explain in brief	[05]	2	1
Q - 3 (b)	The following is the content of a UDP header in the hexadecimal format: CB84000D001C001C a. What is the source port number? b. What is the destination port number? c. What is the length of the user datagram? d. What is the length of the data? e. Is the packet directed from a client to a server or vice versa?	[05]	3	4
	OR			
Q - 3 (a)	Explain TCP Connection establishment using three-way handshaking methods.	[05]	2	1
Q - 3 (b)	Explain the different types of Closed Loop Congestion Control Policies on Network Layer.	[05]	3	2
Q - 4	Attempt any one.	[05]		
(i)	Explain about HTTP.		1	2
(ii)	Differentiate between SMTP and POP.		1	2

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CO : Course Outcome Number BTL : Blooms Taxonomy Level

Level of Bloom's Revised Taxonomy in Assessment

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create