Birla Vishvakarma Mahavidyalaya (Engineering College)
(An Autonomous Institution)
First/Second/Third/Fourth Year, B.Tech.(Computer Engineering)
1st Mid Semester Examination (Online), Even Semester, AY 2021-22

Course Code:2CP07   **Course Title: Computer Networks**

Date: 03.02.2022   **Time: 11:00 am to 12:00 noon**   **Maximum Marks: 30**

Instructions:

- Exam will be conducted by 'Online' Mode through MS Teams only.
- Write ID No., Name, Course Code, Course Title, Date of Exam, Signature and Page Nos. on each answer page in the 'title block' provided in format. The format of answer page is available on website 'notice board'.
- Students have to upload answer sheet through "single pdf file" in MS Teams within the stipulated time. Students will get additional 15 minutes to upload answer sheet pdf file. Refer the detailed instructions on website 'notice board'.
- Give the name to pdf file as: "ID No._Course Code_Name of Exam _Date of Exam" (For example, 12AB001_CD101_Mid Exam_16.1.21)
- Numbers in the square brackets to the right indicate maximum marks.
- The text just below marks indicates the CO(s) followed by the Bloom's level of the question, i.e., R: Remember, U: Understand, A: Apply, N: Analyze, E: Evaluate, C: Create

Q. 1	(a)	Answer the following: 1. A host with IP address 200.100.1.1 want to send a packet to all host in same network , what is the source and destination address? 2. A host with IP address 100.100.100.100 wants to loopback testing , what is the source and destination address? 3. What is the network address of IP address 230.100.123.70? 4. If packet size is 1KB and propagation time 15msec., channel bandwidth is 10^9 bits per second. Then find out transmission time and sender utilization in stop and wait protocol. 5. Consider a packet switching architecture.What are the main components of delay when we use packet switching?	[05] 1,2 A
	(b)	If the bandwidth of the line is 1.8 Mbps , round trip time(RTT) is 4.8 msec. and packet size is 1.5KB, them find link efficiency in stop and wait protocol.	[03] 1,3 A
	(c)	A channel has bit rate of 5 Kbps and propagation delay of 25 msec. For what range of frame size the stop and wait protocol gives an efficiency of atleast 50 percentage.	[03] 1,3 A
	(d)	What is the MAC address and how is it related to NIC? Differentiate the MAC address with the IP address Also explain in case of IP address- What are Private and Special IP addresses?	[04] 1 R
Q. 2	(a)	Refer the below diagram and answer the following questions. Scenario Two PC's are connected to a switch. The IP addresses of the PC's are as displayed in the diagram. PC 1 (192.168.1.2) is connected to port 2 on the switch and PC 2 (192.168.1.3) is connected to port 3 on the switch	[05] 3 A

1. Does the switch need an IP address for PC1 to communicate with PC2.
2. What would be the default subnet mask for both PC's IP add.
3. If the PC1 try to communicate with PC having IP add. 192.165.1.2 will able to communicate? Explain.
4. If PC1 requires to communicate with PC2, what is required from PC2
5. Is a router required for PC1 to communicate with PC2

	(b)	List the design issues of data link layer. What is the difference between bit oriented and byte oriented protocol?	[03] 1 R
	(c)	Assume that source S and destination D are connected through two intermediate routers labeled R. Determine how many times each packet has to visit the network layer and the data link layer during a transmission from S to D. 	[02] 3 U
	(d)	One of the addresses in a block is 20.30.40.10/25. The ISP wants to distribute these blocks (subnet) among Company A (64 addresses), Company B (32 Addresses) and ISP itself (32 addresses). Find the number of addresses in overall network, first address and the last address for Company A , Company B and ISP network	[05] 3 N