Name: **ID:**   **Sec:**

1. "ABC Corporation", a medium-sized company with offices distributed across multiple floors, is planning to upgrade its network infrastructure. Given the company's anticipation of yearly revenue loss, ABC Corporation is looking for a cost-effective network infrastructure. How can a combination of Star and Bus topologies address the specific need of building a cost-effective network infrastructure within ABC Corporation? [2.5]
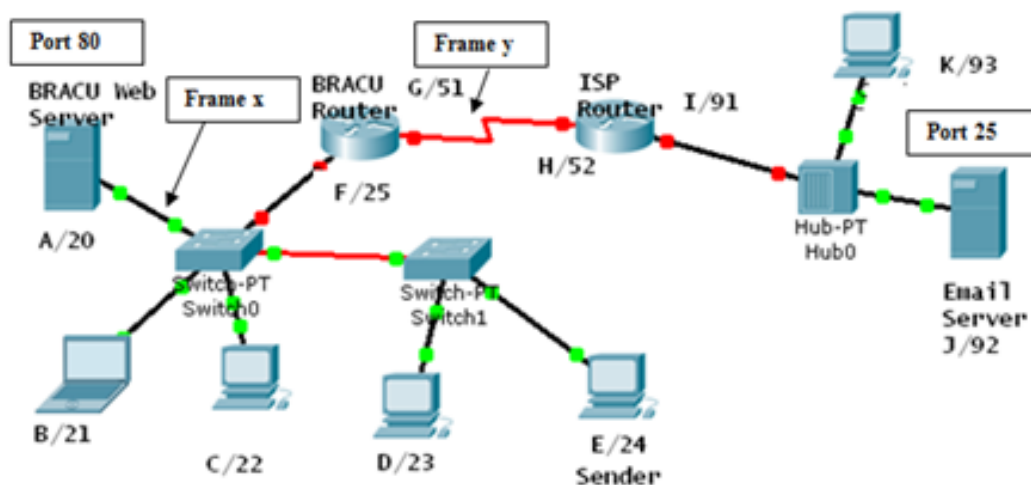

2. Five devices are connected using mesh topology. If each physical link allows communication in both directions (simplex mode), how many physical links are needed in total? [2.5]

3. Match the following to one or more layers of the TCP/IP protocol suite: [2.5]
- determining which device has control over the link at any given time
- accomplishing source-to-destination delivery
- adding sequence number
- transforming the original information to another form
- connection control using either connection-oriented or connectionless mechanism

4. Identify each of the below scenarios to an appropriate network type (PAN, LAN, WAN, MAN) [2.5]

- You and your friend are communicating via email using BRACU PCs and both of you are in different floors of BRACU campus
- You are sending your class schedule using your mobile to your friend who is sitting beside you in a restaurant
- PCs in Ayesha Abed Library can communicate with PCs at BRAC Center (Both are in different networks)
- You are sending an image via Messenger using your mobile to your friend who lives in Dhaka and your home is in Chittagong
- A multinational company has a number of offices located in different countries and all offices are connected, so office staff can easily communicate with one another

5. Complete the frames (X & Y) given below with appropriate port, IP and MAC addresses. The sender Host E has two applications running; one for email with port number 52220 and the other for accessing the web server with port number 60629. The frame X is intended for the BRACU Web server and frame Y is intended for the Email Server. (MAC addresses are denoted using alphabets and IP addresses are denoted using numbers) [5]

Frame X

D. Mac	S. MAC	D. IP	S. IP	D. Port	S. Port	Data	Trailer

Frame Y

D. Mac	S. MAC	D. IP	S. IP	D. Port	S. Port	Data	Trailer