National University of Computer and Emerging Sciences 0019

Computer Networks Lab (CL3001)

Department of Computer Science

Date: November 13th, 2024.

Mid Term Exam

Total Time: 1 Hour 30 minutes

Total Marks: 40

Total Questions: 2

Semester: FALL-2024

Campus: Islamabad

Course Instructor

Ms. Sunduss Aamir Khan

Name: _____ **Roll Number:** _____

Question 1: **(Total marks: 20)**

Imagine you're building a real-time polling platform where users can submit their responses to a question, and the results are immediately displayed to all connected participants. How would you design the server to handle incoming responses from multiple clients and update the poll results in real-time for all users. You are given with the following requirements.

Connection Establishment: The platform begins by establishing connections between clients and the central server. Clients connect to the server to participate in the polling session. Upon successful connection, clients receive confirmation messages, indicating their active participation in the polling activity.

Poll Management: The server maintains information about the ongoing poll, including the question being asked and the possible responses. This information serves as the backbone for the polling session and is shared among all connected clients.

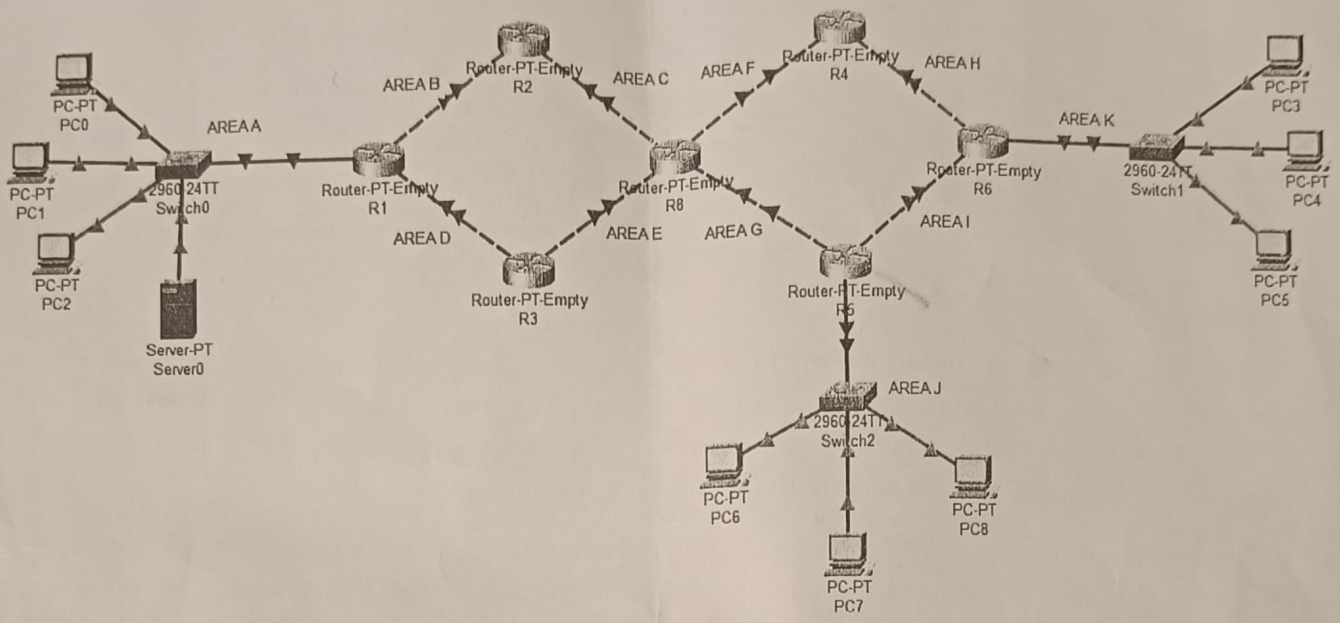
Response Handling: Clients submit their responses to the server as they answer the poll question. Each response includes the client's choice or vote. These responses are sent to the server in real-time as clients make their selections.

Real-Time Updates: Upon receiving a response from a client, the server immediately updates the poll results based on the incoming data. It calculates the current distribution of responses and sends this updated information to all connected clients without delay.

Broadcasting Results: The server broadcasts the updated poll results to all connected clients in real-time. This ensures that every participant sees the latest tally of responses as soon as they are submitted by any user. The broadcasting mechanism facilitates instant updates across all clients, maintaining synchronization among participants.

Question 2: (Total marks: 20)

Apply static routing in the topology given below:



Furthermore, you are required to to assign IP address as :

Area A: 200 . last_2_digits_of_your_rollNo . batchNo . 0

Area B: 200 . last_2_digits_of_your_rollNo+1. batchNo . 0

Area C: 200 . last_2_digits_of_your_rollNo+2 . batchNo . 0

Area D: 200 . last_2_digits_of_your_rollNo+3 . batchNo . 0

Area E: 172. last_2_digits_of_your_rollNo+4 . 0 . 0

Area F: 172. last_2_digits_of_your_rollNo+5 . 0 . 0

Area G: 172. last_2_digits_of_your_rollNo+6 . 0 . 0

Area H: last_2_digits_of_your_rollNo+7 . 0 . 0 .0

Area I: last_2_digits_of_your_rollNo+8 . 0 . 0 .0

Area J: last_2_digits_of_your_rollNo+9 . 0 . 0 . 0

Area K: last_2_digits_of_your_rollNo+10 . 0 . 0 . 0