



COMATS University Islamabad, Lahore Campus

Lab Terminal Exam – FALL 2022

Course Title:	Data Communications and Computer Networks	Course Code:	CSC339	Credit Hours:	3(2,1)
Resource Person:	Dr. Tahir Maqsood	Programme Name:	BSE / BCS		
Semester:	5 th	Batch:	CS Repeaters	Section:	G3 and G4
		Date:			January 12, 2023
Time Allowed:	150 minutes	Maximum Marks:			100
Student's Name:		Reg. No.	CIIT/		/LHR

Important instructions:

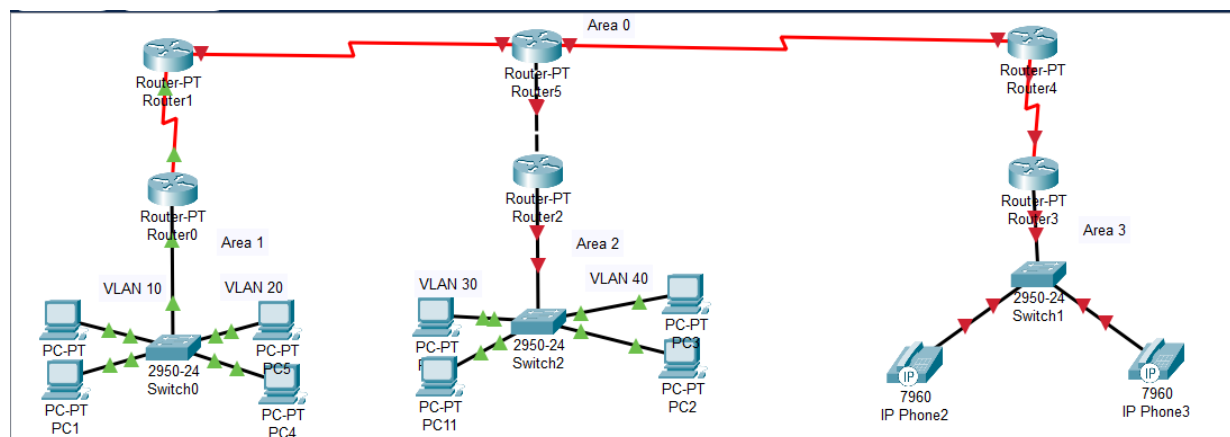
- You are required to submit following files
 - one packet tracer file (.pkt)
 - two TCL files (.tcl)
 - one docx file having all the screenshots
- Save all your files with your registration number e.g (FA20-RCS-022).
- Upload all of your files on Google Classroom in a zip folder having same name as your registration number.

Question No 1:

CLO: <6>; Develop the network as per the description given below; Bloom Taxonomy Level: <Apply>

Problem Description:

Consider the network topology given below.



1) Configure VLANs on the switches using following IP scheme.

[10 marks]

VLAN 10: 172.X.10.0/24

VLAN 20: 172.X.20.0/24

VLAN 30: 172.X.30.0/24

VLAN 40: 172.X.40.0/24

Note: Replace X with last three digits of your registration number. For instance, if your registration number is FA19-BSE-007, then use 172.7.10.0/24 and so on.

- 2) Configure Inter VLAN routing [10 marks]
- 3) Configure multi area OSPF as mentioned in the figure. [10 marks]
- 4) Configure VoIP in area 3. [10 marks]
- 5) Enable remote access to Router 5 using Telnet. [10 marks]

Question No 2:

CLO: <6>; Create a network in NS2 as per the description given below; Bloom Taxonomy Level: <Apply>

PART I [20 marks]

- 1) Create a wireless network scenario in NS2 having 20 nodes.
- 2) Set simulation area as 500 m X 500 m.
- 3) Randomly place the nodes within the simulation area
- 4) Create two TCP traffic flows and one UDP flow between any three pair of nodes. For each traffic flow use different data rates.

PART II [30 marks]

- 5) Run the simulation for 200.0 simulation seconds at least three times.
- 6) Generate random node movements where each node should move with different speed.
- 7) Use Dynamic routing in the simulation. DSDV or AODV can be used.
- 8) Use NAM to view the simulation graphically.
- 9) Show the simulation results using Xgraph.
- 10) Write an AWK script to calculate throughput of different executions of the simulation.