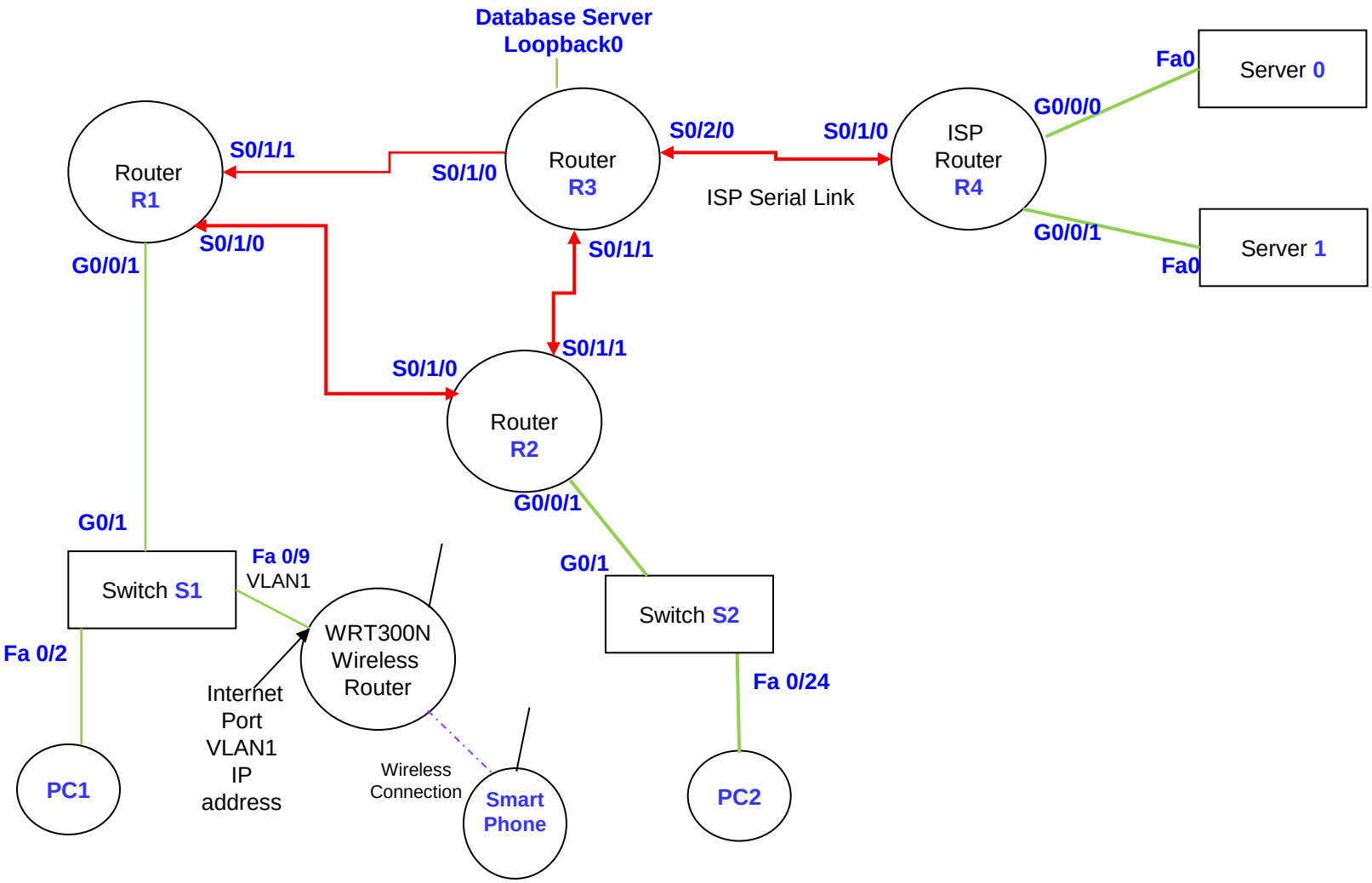
Mid Semester Skills Sample A - Duration 120 minutes

Network Topology



Network Address

161.31.0.0/16

VLSM Design

Subnet Name	Size	Allocated Size	Address	Mask	Dec Mask	Assignable Range	Broadcast
VLAN10 R1	400	510	161.31.0.0	/23	255.255.254.0	161.31.0.1 - 161.31.1.254	161.31.1.255
VLAN20 R2	200	254	161.31.2.0	/24	255.255.255.0	161.31.2.1 - 161.31.2.254	161.31.2.255
DatabaseLoopback0	50	62	161.31.3.0	/26	255.255.255.192	161.31.3.1 - 161.31.3.62	161.31.3.63
VLAN1 SwS1	20	30	161.31.3.64	/27	255.255.255.224	161.31.3.65 - 161.31.3.94	161.31.3.95
VLAN1 SwS2	20	30	161.31.3.96	/27	255.255.255.224	161.31.3.97 - 161.31.3.126	161.31.3.127
Seriallink1	2	2	161.31.3.128	/30	255.255.255.252	161.31.3.129 - 161.31.3.130	161.31.3.131
Seriallink2	2	2	161.31.3.132	/30	255.255.255.252	161.31.3.133 - 161.31.3.134	161.31.3.135
Seriallink3	2	2	161.31.3.136	/30	255.255.255.252	161.31.3.137 - 161.31.3.138	161.31.3.139

ISP Serial Link Network Address: **200.31.31.0/30**

Server 0: **171.31.0.0/16**

Server 1: **181.31.0.0/16**

Tasks, Comments and Marks

1. Do not configure **enable passwords** OR **line console passwords** on routers and switches, unless specified by the task.

2. Internal Network VLSM Design provided

3. Message of the Day (MOTD) Banner Configuration (If banners are not configured, then 0 marks for Skills Exam)

You must configure a MOTD Banner, recording your student id, family name and lab time, on all routers and switches, as shown below:

banner motd &
Welcome to Hostname
Your Student Id, *Your Family Name*, Your *Lab Time*
&

4. Switch Configuration (10 marks)

a) On switch S1

i. create VLAN 10 Shirts
ii. configure ports 2,3 as VLAN 10 access ports
iii. configure Port Security, mac address sticky on ports 2,3 max 4, with **violation shutdown**

b) On switch S2

i. create VLAN 20 Hats
ii. configure port 24 as VLAN 20 as access port

c) On both switches configure G0/1 as a **trunk** port

5. Network IP Address Configuration (15 marks)

a) Switch Management – on both switches configure an ip address on interface VLAN1 and configure a default gateway

b) Configure **ALL** router **serial** and **loopback** interfaces with ip addresses

c) R1 and R2 Routers

ii) Configure **Inter-VLAN routing** on G0/0/1
- R1 configure separate sub-interfaces for VLAN 1 (the management VLAN) and VLAN 10
- R2 configure separate sub-interfaces for VLAN 1 (the management VLAN) and VLAN 20
- Configure each **sub-interface** with an ip address

d) Configure PC1 and PC2 Hosts with specified VLAN:

i) IP address and subnet mask.
ii) Default Gateway IP address.

e) Configure ISP Serial Link IP addresses

f) Configure IP addresses on Server 0 and Server 1

Tasks, Comments and Marks

6. Routing Protocol Configuration (15 marks)

a) R1 and R2

- RIP V2
- Configure passive-interface as appropriate to avoid sending unnecessary routing information

b) R3

- RIP V2, do not advertise the external network address
- Configure passive-interface as appropriate to avoid sending unnecessary routing information
- Configure default route to ISP Router
- Advertise default route to internal routers

c) ISP Router

- **Do not configure RIP**
- **Only** configure a static route (default class B mask) to your internal network

7. Wireless Router Configuration (5 marks)

a) You will configure a Wireless Router that connected to the fixed network infrastructure.

b) Youwilll use the smart phone as the wireless device

c) On WRS1 Wireless Router configure:

i) Internet Port with VLAN 1 IP address

ii) SSID as W<*student id*>

iii) DHCP to provide addresses for smart phone

iv) Allow inbound ping requests

v) **Do not** configure wireless security

8. Access List Requirements R1 Router (10 marks)

a) Create **NAMED** Extended ACLs to meet the following requirements:

- PCs in VLAN 10 denied **HTTP** access to ISP Server0 and permitted **ALL** other access to ISP Server0
- PCs in VLAN 20 permitted **HTTP** access to ISP Server1 and denied **ALL** other access to ISP Server1

Submission Details

1. Save the Packet Tracer file as StudentIdDayLabTimeRoomMidSemSkills

eg if your student Id is 123456789, Day Monday, Lab Time 1730, Room ATC329 then the file name will be

123456789Mon1730ATC329MidSemSkills

2. You must email your Packet Tracer file to your tutor within 10 minutes of the end of the exam, else you will fail the exam with a final mark of zero.