	COLLEGE OF COMPUTING AND INFORMATION SCIENCES		
	Final-Term Assessment Fall 2020 Semester		
Class Id	104973, 104974, 104975, 104976	**Course Title**	Internet and Intranet Architecture.
Program	BSCS	**Campus / Shift**	Main Campus / Morning
Date	6th December 2020	**Total Points**	145
Duration	03 hours	**Faculty Name**	Kashif Bashir / Sanjay Kumar
Student Id	8789	**Student Name**	Asif Ali Bhutto

Instructions:

- Filling out Student-ID and Student-Name on exam header is mandatory.
- Do not remove or change any part of exam header or question paper.
- Write down your answers in given space or at the end of exam paper with proper title "Answer for Question# _ _".
- Answers should be formatted correctly (font size, alignment and etc.)
- Handwritten text or image should be on A4 size page with clear visibility of contents.
- Only PDF format is accepted (Student are advise to install necessary software)
- In case of CHEATING, COPIED material or any unfair means would result in negative marking or ZERO.
- A mandatory recorded viva session will be conducted to ascertain the quality of answer scripts where deemed necessary.

- **Caution:** Duration to perform Final -Term Assessment is **03 hours only**. Extra 01 hour are given to cater all kinds of odds in submission of Answer-sheet. **Therefore, if you failed to upload answer sheet on LMS (in PDF format) within 04 hours limit, you would be considered as ABSENT/FAILED.**

Question 1. Refer to the figure 1. [95]

a) Configure Floating static route on router R3. [10]
b) Configure alternative route for the network 172.20.96.0/20 on router R4. [5]
c) Configure RIPv2 on routers R6,R7,R8,R9 and RR1. The no ripv2 policy b/w R6 and R9 remain in place, but R7, R8 and R6 must exchange RIP advertisements. [10]
d) Configure OSPF on routers RR2, R10 and R11. [10]
e) Calculate metric on the router R10 for the network 10.10.10.0/24. [10]
f) Configure RR2 and R10 to authenticate the OSPF updates being exchanged over the serial link. using the first key 2 days from today's date. Configure a second key to be used beginning 30 days after the first key. [10]
g) Configure EIGRP1 on routers RR1 and RR2. [5]
h) Configure NAT on the routers R1 & R6. [10]
i) When you type the command "SHOW IP NAT TRANSLATIONS" on router R6, What do you see? [5]
j) There is a scheduled maintenance of file transfer servers in an accompany, so it is explicitly denied for services. But it is a need of employees to access web server by using port 80. All users will connect to the DNS server for name resolution with port 53 . Configure ACL on routers R13 or R12. [10]
k) Configure Route Redistribution on RR1 and RR2 routers [10]

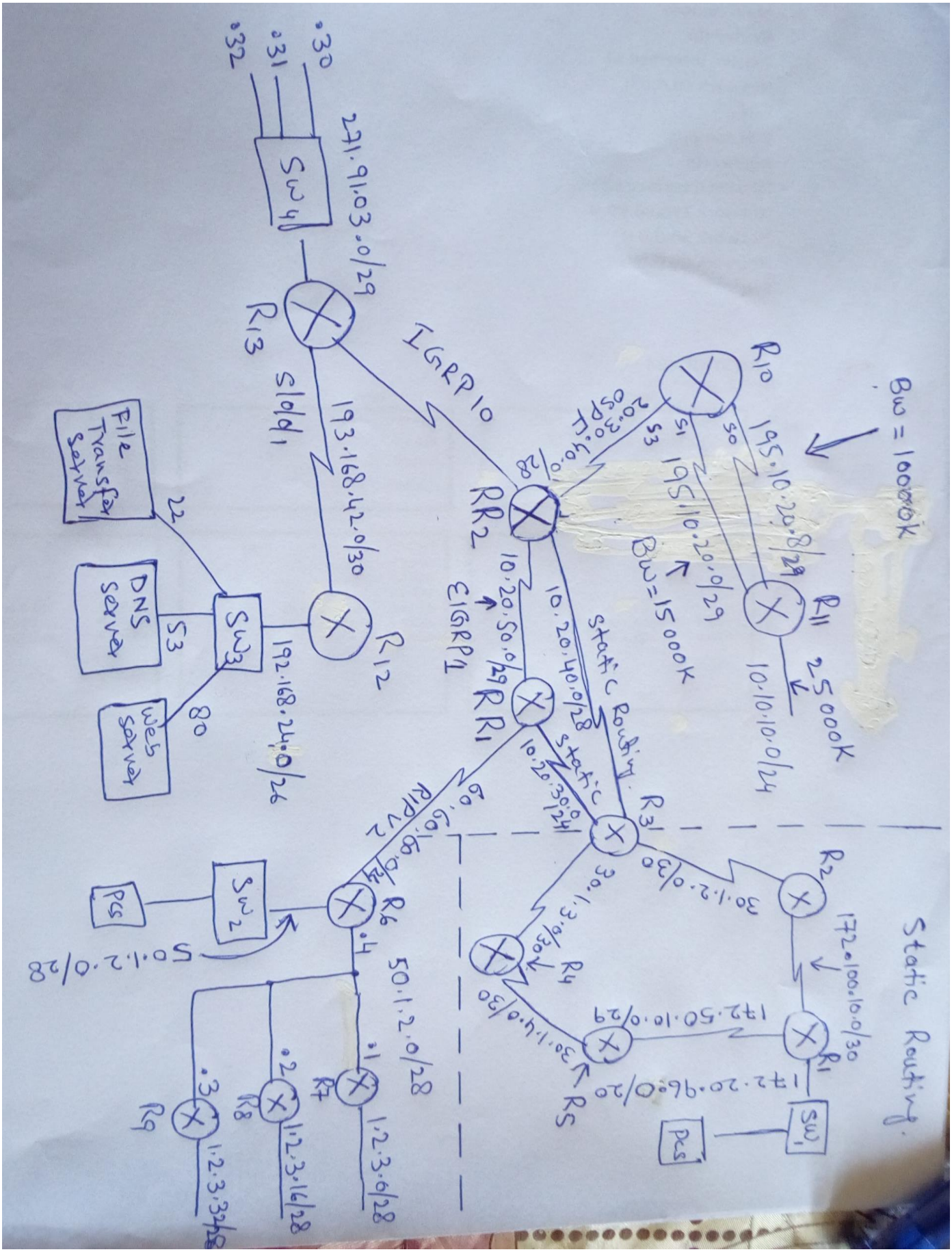
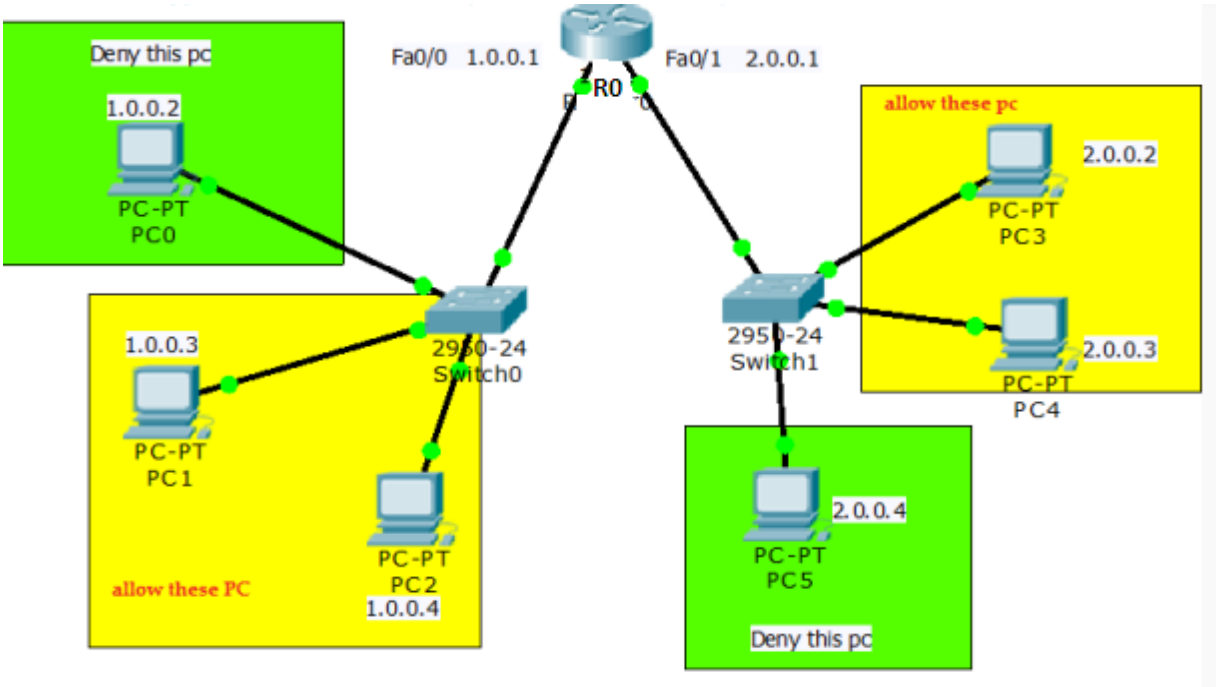

Static Routing.
Bw = 100000K
R10
R11
25000K
10.10.10.0/24
195.10.20.8/29
195.10.20.0/29
Bw=15000K
R1
172.100.10.0/30
SW1
PC1
R2
R3
R4
R5
R6
R7
R8
R9
RR1
RR2
EIGRP1
EIGRP10
10.20.40.0/28
static Routing
10.20.30.0/24
10.20.50.0/29
10.20.60.0/29
30.1.1.0/30
30.1.2.0/30
30.1.3.0/30
30.1.4.0/30
172.20.96.0/29
172.50.10.0/29
50.1.2.0/28
1.2.3.0/28
1.2.3.16/28
1.2.3.32/28
R12
R13
193.168.42.0/30
192.168.24.0/26
271.91.03.0/29
SW2
SW3
SW4
PC5
DNS server
Web server
File Transfer server
S0/0/1
S1/0/1
.30
.31
.32
.1
.2
.3
.4
80
22
53

Figure 1

Questions 2: **Answer the following problems and describe their solution use commands where needed. [30]**

a) If there is a VLAN based network which also includes Native VLAN and you are getting unintended results then what kind of problem is arisen and what is the solution.
b) If redistribution contains discontiguous networks then what kind of command should be used to avoid it.
c) In VLAN based you are getting loss of network connectivity then problem has arisen discus solution.
d) If a router has too many interface but they are connected with different protocols the what command is used to send packet at once to all interfaces
e) If a router is getting updates from RIP which directly connected network to its interface and also getting same update from EIGRP which is two hops away from its direct interface then which update it will accept and why
f) Configure the router R0 in such a way that it's both interfaces deny and allow the pc accordingly as mentioned in the figure8



Questions 3: [20]

a) What are five types of LSA packets in OSPF? What is the purpose of each type?
b) What mechanism an OSPF speaking router uses to identify other adjacent OSPF speaking router?
c) In redistribution if a router gets information of same network from different protocol then how a router decides which protocol to follow?
d) In distance vector routing what is the cause for creating loops and how to prevent it?

ANSWER OF QUESTION1

Asif Ali Bhatti (8789)

Q No 1

(a)

172.100.10.0	255.255.255.252	30.1.2.2	5
172.100.10.0	255.255.255.252	30.1.3.2	10
172.20.96.0	255.255.240.0	30.1.2.2	5
172.210.96.0	255.255.240.0	30.1.3.2	10
30.1.4.0	255.255.255.252	30.1.2.2	5
30.1.4.0	255.255.255.252	30.1.3.2	10
172.50.10.0	255.255.255.248	30.1.2.2	5
172.50.10.0	255.255.255.248	30.1.3.2	10

(B)

- Firstly Static Routing

ip route 30.1.2.0 255.255.255.252 30.1.3.2
ip route 172.50.10.0 255.255.255.248 30.1.4.2
ip route 172.100.10.0 255.255.255.252 30.1.3.2

Defining Alternative Route on 172.20.96.0

~~ip Route 172.20.96.0 255.255.255.2~~
ip route 172.20.96.0 255.255.240.0 30.1.3.2
ip route 172.20.96.0 255.255.240.0 30.1.4.2.

Asif Ali Bhutto (8789)
(C)

Configure Rip v2 R6, R9, R8, R7 & RR1

R7

Router Rip
Version 2
Network 50.0.0.0
Network 1.0.0.0
exit

R8

Router Rip
Version 2
Network 50.0.0.0
Network 1.0.0.0
exit

R9

Router Rip
Version 2
Network 50.0.0.0
Network 1.0.0.0
exit

RR1

Router Rip
Version 2
Network 60.0.0.0
exit

Now
no Ripv2 policy b/w R6.
~~Policy~~ b/w and R9. e remain in place but R7, R8, and R6 must exchange Rip advertisement.

R6

Router Rip
Version 2
Passive Interface .4
Network 60.0.0.0
Network 50.0.0.0
Neighbor 50.1.2.1
Neighbor 50.1.2.2
exit.

It block .4 interface on R6 Router and used neighbor command.

(d)

Ospf

RR2

```
Router ospf 8789
Network 20.30.40.0 0.0.0.15 area 0
exit
```

R10

```
Router Ospf 8789
Network 20.30.40.0 0.0.0.15 area 0
Network 195.10.20.0 00.0.7 area 0
Network 195.10.20.8 0.0.0.7 area 0
exit
```

R11

```
Router Ospf 8789
Network 195.10.20.0 0.0.0.7 area 0
Network 195.10.20.8 0.0.0.7 area 0
Network 10.10.10.0 0.0.0.255 area 0
exit.
```

(e)

Calculate metric on Router R10 for network 10.10.10.0/24

10,000k = 10000,000 bps

cost = 10^8 / bandwidth bps

cost = 10^8 / 10000000

cost = 10

metric = 110/10 → metric. (Administrative Distance)

(G)

EIGRP

RR1

```
Router Eigrp 1
network 10.20.50.0 0.0.0.7
no auto-summary
exit.
```

RR2

```
Router Eigrp 1
network 10.20.50.0 0.0.0.7
no auto-summary
exit.
```

(h)

config Nat on R1 & R6

R1

→ ip nat pool Asif 172.50.10.3 172.50.10.6 netmask 255.255.255.248
→ access-list 25 permit 172.20.96.0 0.0.15.255
→ ip nat inside source list 25 pool Asif
→ interface se 0/0/0
→ ip nat out side
→ exit
→ interface fa 0/0
→ ip nat inside
→ exit.

R6

→ ip nat pool Bhutto 60.60.60.3 60.60.60.6 netmask 255.255.255.0
→ access-list 25 permit 50.1.2.0 0.0.0.15
→ ip nat inside source list 25 pool Bhutto
→ interface se 0/0/0
→ ip nat out side
→ exit
→ interface fa 0/0
→ ip nat outside
→ exit

(I)

Show ip nat translations on R6

	Inside global	Inside local	outside local	outside global
icmp	60.60.60.3:15	50.1.2.2:15	172.20.96.2:15	172.50.10.3:15
~~icmp 60~~.				
icmp	60.60.60.3:16	50.1.2.2:16	172.20.96.2:16	172.50.10.3:16
icmp	60.60.60.4:17	50.1.2.2:17	172.20.96.2:17	172.50.10.4:17
icmp	60.60.60.5:18	50.1.2.2:18	172.20.96.2:18	172.50.10.5:18

(k)

Route Redistribution

RR1

→ Router eigrp 1
redistribute rip metric 10 20 30 40 50
redistribute Static metric 20000 1 250 5 1400
exit

→ Router Rip
Version 2
redistribute eigrp 1 metric 2
redistribute Static metric 2
exit

→ ip route 0.0.0.0 [illegible] 0.0.0.0 10.20.30.2

RR2

Router eigrp 1
redistribute igrp 10 metric 200 1 200 5 1000
redistribute ospf 8789 metric 10000 1 255 1 1500
redistribute Static metric 20000 1 250 5 1400
exit

(1) (2)

Router ospf 8789
redistribute static metric
redistribute igrp
redistribute ospf 8789

→ Router ospf 8789
redistribute eigrp 1 metric 250 subnets.
redistribute igrp 10 metric 250 subnets
redistribute static metric 250 subnets.
exit

→ router igrp 10
redistribute eigrp 1 metric 200 | 200 5 1000
redistribute static metric 20000 | 250 5 1400
redistribute ospf 8789 metric 10000 | 255 | 1500

→ ip route 0.0.0.0 0.0.0.0 10.20.40.2
exit.

ANSWERFOR QUESTION 3

Q No 3

(a)

LSA Type 1 Router LSA
LSA Type 2 ~~Router~~ Network lsA
LSA Type 3 Summery LSA
LSA Type 4 Summary ASBR LSA
LSA Type 5 Autonomous System external LSA
LSA Type 6 Multicast Ospf LSA

(c) Accually Redistibute Router decided on the beset of metric.

(b) In Ospf ~~we use~~ configuration we use ~~lired~~ directly connected network. Router share packs with neighbor Router

(d) because discountigour problem created there