INFO 3605 – Fundamentals of LAN Technologies (2021/2022 Semester I)

Assignment 1

Date Given: **2021/09/22**

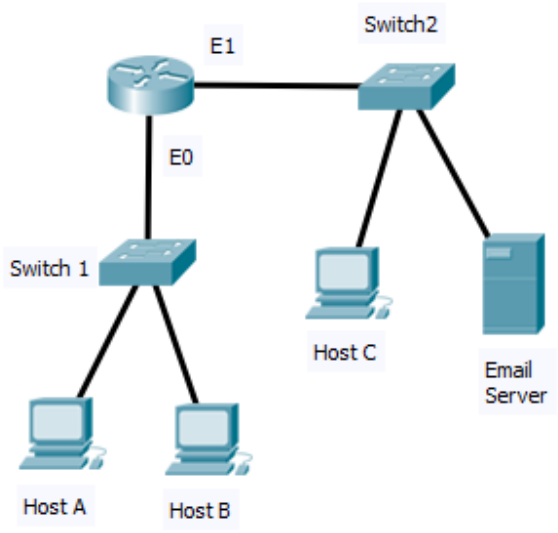
Percentage towards coursework: **10%**

This is an individual assignment, no group work. Discussions and questions can be done in the forum.

This assignment is out of **100** marks.

The assignment is due midnight **Saturday 9th October 2021**

1) Which destination addresses will be used by Host A to send data to Host C? (Choose two and explain why).



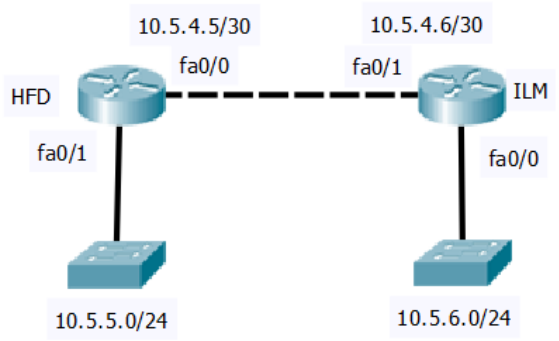
A. the IP address of Switch 1
B. the MAC address of Switch 1
C. the IP address of Host C
D. the MAC address of Host C
E. the IP address of the router's E0 interface
F. the MAC address of the router's E0 interface

[4 marks]

ANS: C. the IP address of Host C, F. the MAC address of the router's E0 interface
Most data communications is at the layer 3 level which involves IP addresses. Once a router in involved the only way data can cross a router has to be layer 3 or above.
Routers do not allow MAC addresses to pass. Routers decapsualtes all frames addressed to it. This means the PC needs to send the frame to the router's MAC address belonging to the interface on the same broadcast network as the pc.

Metric [Qu1]	Marks	Awarded	Comments
M1 – First Choice correct	1		
M2 – Second Choice Correct	1		
M3 – IP address explanation	1		
M4 – MAC Address explanation	1		
SUB TOTAL:	**4**		

2) Refer to the graphic. A static route to the 10.5.6.0/24 network is to be configured on the HFD router. Which commands will accomplish this? (Choose two and explain why).



A. HFD (config) #ip route 10.5.6.0 0.0.0.255 fa0/0
B. HFD(config)# ip route 10.5.6.0 0.0.0.255 10.5.4.6
C. HFD(config)# ip route 10.5.6.0 255.255.255.0 fa0/0
D. HFD(config)# ip route 10.5.6.0 255.255.255.0 10.5.4.6
E. HFD(config)# ip route 10.5.4.6 0.0.0.255 10.5.6.0
F. HFD(config)# ip route 10.5.4.6 255.255.255.0 10.5.6.0

[4 marks]

ANS: C. HFD(config)# ip route 10.5.6.0 255.255.255.0 fa0/0, D. HFD(config)# ip route 10.5.6.0 255.255.255.0 10.5.4.6.
A static route command is made up of the following: network to route, the subnet mask of this network, the next hop ip address or outgoing interface.
In the example above the network address is 10.5.6.0. Since the prefix is /24 this means the subnet mask is 255.255.255.0. The next hop ip address is based on the next ip at the HFD router that will lead to the 10.5.6.0/24 network. HFD can see the ip address 10.5.4.6 which can be set as the next hop IP address.
The outgoing interface of the HFD router can be used if the next hop ip address is not known, but should have only two ip addresses on this network.

Metric [Qu2]	Marks	Awarded	Comments
M5 – First Choice correct	1		
M6 – Second Choice Correct	1		
M7 – Correct subnet, mask and next hop	1		
M8 – Correct subnet, mask and outgoing interface	1		
SUB TOTAL:	**4**		

3) Using the packet tracer diagram, the networks listed and the following notes:

Notes:

- Each router must have IP addresses configured for ALL the respective networks.
- The interfaces on the routers to each of the websites networks are already configured (green).
- Use your discretion when allocating which IPs to which hosts and router interfaces.
- Each switch is on a separate network and connected to a separate interface on the router.
- DNS 8.8.8.8 resolves access to www.google.com (already configured).
- DNS 1.1.1.1 resolves access to www.mozilla.org (already configured).
- LondonServer, PC0, PC2 will use DNS server 8.8.8.8.
- PC1, PC3 will use DNS server 1.1.1.1.

a) Create a word document (to save your answers) with the following details:
   i) Name: **INFO 3605 - Assignment 1 - [INDUMBER].docx**

b) Fill out the tables below with your IP and network details **[7 marks]**

Metric [Qu3 b)]	Marks	Awarded	Comments
M9 – > 6 interfaces correct (computers)	1		
M10 – > 10 interfaces correct (routers)	1		
M11 – > 6 IP address correct (computers)	1		
M12 – > 10 IP address correct (routers)	1		
M13 – > 3 gateways correct (computers)	1		
M14 – > 3 DNS correct (computers)	1		
M15 – > 5 network addresses correct	1		
SUB TOTAL:	**7**		

a) Download the "**INFO 3605 - Assignment 1 - Static Routing**" zipped GNS3 project file;
   i) Make a copy of the project folder and append your ID number to the filename,
   ii) Open in GNS3 and perform the following [**HINT: IP addresses are listed in the diagram**]:
      (1) Configure **R1** interfaces (record commands used in word document) **[5 marks]**

ANS:

```
enable
configure terminal
interface Serial0/1
ip address 10.2.2.2 255.255.255.0
shutdown
no shutdown

interface FastEthernet0/0
ip address 192.168.1.1 255.255.255.0
duplex auto
speed auto
```

shutdown
no shutdown
end
copy running-config startup-config

Metric [Qu3 c) ii) (1)]	Marks	Awarded	Comments
M16 – correct interface selected	1		
M17 – correct IP address and mask set	1		
M18 – correct interface selected	1		
M19 – correct IP address and mask set	1		
M20 – startup config has entries	1		
SUB TOTAL:	**5**		

(2) Configure **London** interfaces (record commands used in word document) **[5 marks]**

ANS:
enable
configure terminal
interface Serial 0/0
description s0/0 to 10.2.2.0 255.255.255.0 router network to R1
ip address 10.2.2.1 255.255.255.0
shutdown
no shutdown

interface Serial 0/1
description s0/1 to 10.1.1.0 255.255.255.0 router network to Manchester
ip address 10.1.1.1 255.255.255.0
shutdown
no shutdown

interface FastEthernet 0/0
description Fa0/0 to 192.168.1.10 255.255.255.0 PC network
ip address 192.168.10.1 255.255.255.0
speed auto
duplex auto
shutdown
no shutdown

interface FastEthernet 0/1
description Fa0/1 to 192.168.1.11 255.255.255.0 PC network
ip address 192.168.11.1 255.255.255.0
speed auto
duplex auto
shutdown
no shutdown
end
copy running-config startup-config

Metric [Qu3 c) ii) (2)]	Marks	Awarded	Comments

M21 – correct interface selected and ip address configured	1		
M22 – correct interface selected and ip address configured	1		
M23 – correct interface selected and ip address configured	1		
M24 – correct interface selected and ip address configured	1		
M25 – startup config has entries	1		
SUB TOTAL:	**5**		

(3) Configure **Manchester** interfaces (record commands used in word document)**[5 marks**]

ANS:

```
enable
configure terminal
interface Serial 0/0
description s0/0 to 10.1.1.0 255.255.255.0 router network to London
ip address 10.1.1.2 255.255.255.0
shutdown
no shutdown

interface Serial 0/1
description s0/1 to 172.16.100.0 255.255.255.0 router network to R2
ip address 172.16.100.1 255.255.255.0
shutdown
no shutdown



interface FastEthernet 0/0
description Fa0/0 to 172.16.1.0 255.255.255.0 PC network
ip address 172.16.1.1 255.255.255.0
speed auto
duplex auto
shutdown
no shutdown

interface FastEthernet 0/1
description Fa0/1 to 172.16.2.0 255.255.255.0 PC network
ip address 172.16.2.1 255.255.255.0
speed auto
duplex auto
shutdown
no shutdown
end
copy running-config startup-config
```

Metric [Qu3 c) ii) (3)]	Marks	Awarded	Comments
M26 – correct interface selected and ip address configured	1		

M27 – correct interface selected and ip address configured	1		
M28 – correct interface selected and ip address configured	1		
M29 – correct interface selected and ip address configured	1		
M30 – startup config has entries	1		
SUB TOTAL:	**5**		

(4) Configure **R2** interfaces (record commands used in word document) **[5 marks]**

ANS:
enable
configure terminal
interface Serial 0/0
description s0/0 to 172.16.100.0 255.255.255.0 router network to Manchester
ip address 172.16.100.2 255.255.255.0
shutdown
no shutdown

interface Serial 0/1
description s0/1 to 10.223.253.0 255.255.255.0 router network to ISP2
ip address 10.223.253.246 255.255.255.0
shutdown
no shutdown
end
copy running-config startup-config

Metric [Qu3 c) ii) (4)]	Marks	Awarded	Comments
M31 – correct interface selected	1		
M32 – correct ip address configured	1		
M33 – correct interface selected	1		
M34 – correct ip address configured	1		
M35 – startup config has entries	1		
SUB TOTAL:	**5**		

(5) Save your configurations for each router (record command in word doc). **[4 marks]**

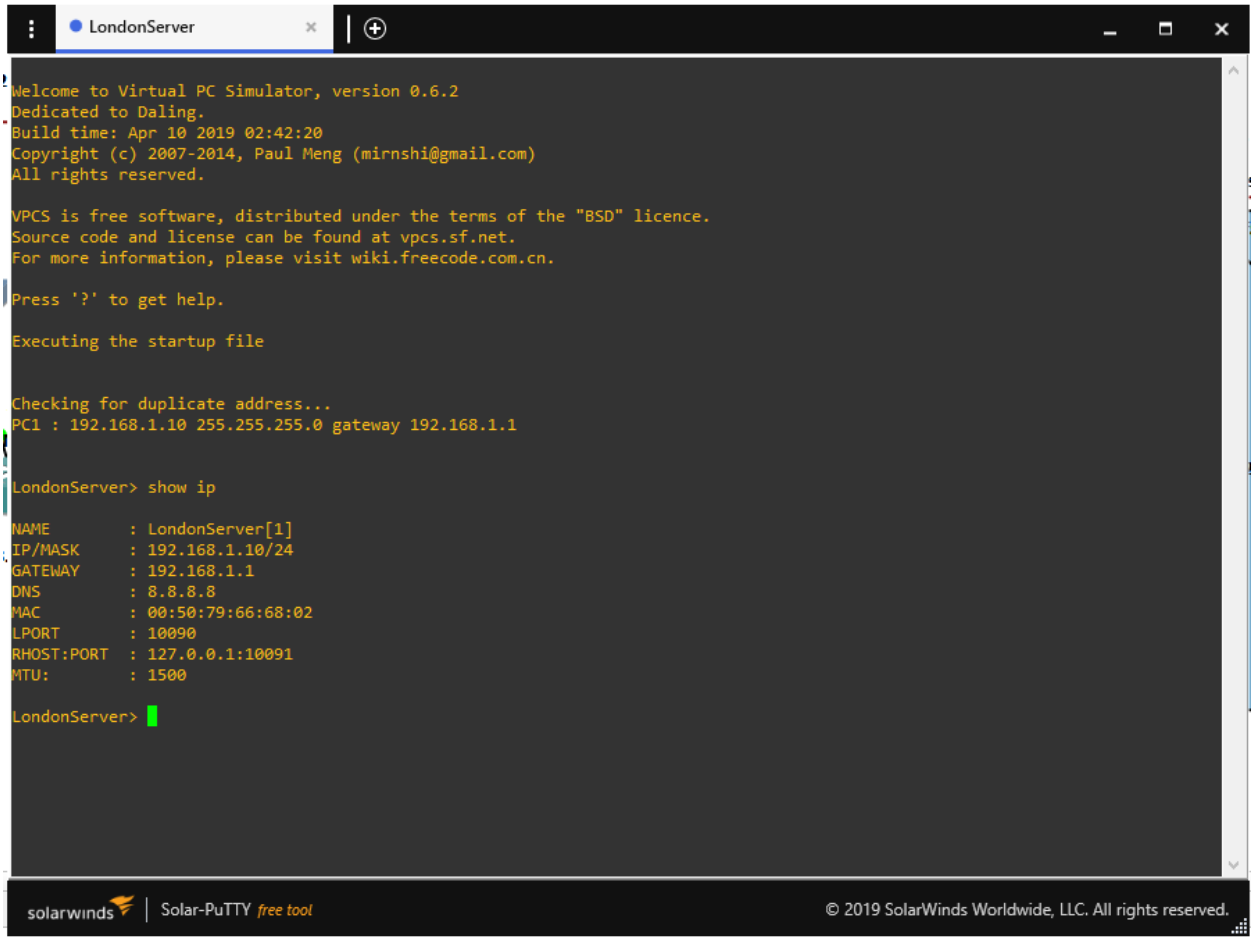
ANS:
copy running-config startup-config

Metric [Qu3 c) ii) (5)]	Marks	Awarded	Comments
M36 – copy running-config startup-config command recorded for each device	4		show startup-config
SUB TOTAL:	**4**		

iii) Configure each of the PCs/Server with their respective IP addresses, gateways and DNS servers.

(1) Include a screenshot in your word document showing the IP address configured for each PC/Server (5 screenshots in total). **[5 marks]**

ANS:




PC0
Welcome to Virtual PC Simulator, version 0.6.2
Dedicated to Daling.
Build time: Apr 10 2019 02:42:20
Copyright (c) 2007-2014, Paul Meng (mirnshi@gmail.com)
All rights reserved.
VPCS is free software, distributed under the terms of the "BSD" licence.
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.
Press '?' to get help.
Executing the startup file
Checking for duplicate address...
PC1 : 192.168.10.10 255.255.255.0 gateway 192.168.10.1
PC0> show ip
NAME : PC0[1]
IP/MASK : 192.168.10.10/24
GATEWAY : 192.168.10.1
DNS : 8.8.8.8
MAC : 00:50:79:66:68:00
LPORT : 10092
RHOST:PORT : 127.0.0.1:10093
MTU: : 1500
PC0>
solarwinds
Solar-PuTTY free tool
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PC1
Welcome to Virtual PC Simulator, version 0.6.2
Dedicated to Daling.
Build time: Apr 10 2019 02:42:20
Copyright (c) 2007-2014, Paul Meng (mirnshi@gmail.com)
All rights reserved.
VPCS is free software, distributed under the terms of the "BSD" licence.
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.
Press '?' to get help.
Executing the startup file
Checking for duplicate address...
PC1 : 192.168.11.10 255.255.255.0 gateway 192.168.11.1
PC1> show ip
NAME : PC1[1]
IP/MASK : 192.168.11.10/24
GATEWAY : 192.168.11.1
DNS : 1.1.1.1
MAC : 00:50:79:66:68:01
LPORT : 10094
RHOST:PORT : 127.0.0.1:10095
MTU: : 1500
PC1>
solarwinds
Solar-PuTTY free tool
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PC2
Welcome to Virtual PC Simulator, version 0.6.2
Dedicated to Daling.
Build time: Apr 10 2019 02:42:20
Copyright (c) 2007-2014, Paul Meng (mirnshi@gmail.com)
All rights reserved.
VPCS is free software, distributed under the terms of the "BSD" licence.
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.
Press '?' to get help.
Executing the startup file
Checking for duplicate address...
PC1 : 172.16.1.10 255.255.255.0 gateway 172.16.1.1
PC2> show ip
NAME : PC2[1]
IP/MASK : 172.16.1.10/24
GATEWAY : 172.16.1.1
DNS : 8.8.8.8
MAC : 00:50:79:66:68:03
LPORT : 10096
RHOST:PORT : 127.0.0.1:10097
MTU: : 1500
PC2>
solarwinds
Solar-PuTTY free tool
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Metric [Qu3 c) iii) (1)]	Marks	Awarded	Comments
M37 – 1 mark for each correctly configured device	5		
SUB TOTAL:	**5**		

iv) For the static routing perform the following:

(1) Configure static routing for **R1** to access each of the respective networks including access to the two DNS servers. **[8 marks]**

ANS:
!!! R1

enable
configure terminal

ip route 8.8.8.0 255.255.255.0 64.28.140.226
ip route 216.58.192.0 255.255.255.0 64.28.140.226
ip route 1.1.1.0 255.255.255.0 10.2.2.1
ip route 104.16.41.0 255.255.255.0 10.2.2.1

ip route 10.223.253.0 255.255.255.0 10.2.2.1

ip route 10.2.2.0 255.255.255.252 10.2.2.1
ip route 192.168.10.0 255.255.255.0 10.2.2.1
ip route 192.168.11.0 255.255.255.0 10.2.2.1
ip route 10.1.1.0 255.255.255.252 10.2.2.1
ip route 172.16.1.0 255.255.255.0 10.2.2.1
ip route 172.16.2.0 255.255.255.0 10.2.2.1
ip route 172.16.100.0 255.255.255.252 10.2.2.1

end
copy running-config startup-config

Metric [Qu3 c) iv) (1)]	Marks	Awarded	Comments
M38 – > 3 entries correct	1		12 route entries in total
M39 – > 5 entries correct	1		Exit interface are acceptable for point to point links
M40 – > 6 entries correct	1		Other commands are not marked
M41 – > 7 entries correct	1		
M42 – > 8 entries correct	1		
M43 – > 9 entries correct	1		
M44 – > 10 entries correct	1		
M45 – all entries correct	**1**		
SUB TOTAL:	**8**		

(2) Configure static routing for **London** to access each of the respective networks including access to the two DNS servers. **[8 marks]**

ANS:
!!! London

enable
configure terminal
hostname London

ip route 8.8.8.0 255.255.255.0 10.2.2.2
ip route 216.58.192.0 255.255.255.0 10.2.2.2
ip route 1.1.1.0 255.255.255.0 10.1.1.2
ip route 104.16.41.0 255.255.255.0 10.1.1.2
ip route 64.28.140.0 255.255.255.0 10.2.2.2
ip route 10.223.253.0 255.255.255.0 10.1.1.2
ip route 192.168.1.0 255.255.255.0 10.2.2.2

ip route 172.16.1.0 255.255.255.0 10.1.1.2
ip route 172.16.2.0 255.255.255.0 10.1.1.2
ip route 172.16.100.0 255.255.255.252 10.1.1.2

end
copy running-config startup-config

Metric [Qu3 c) iv) (2)]	Marks	Awarded	Comments
M46 – > 2 entries correct	1		10 route entries in total
M47 – > 4 entries correct	1		Exit interface are acceptable for point to point links
M48 – > 5 entries correct	1		Other commands are not marked
M59 – > 6 entries correct	1		
M50 – > 7 entries correct	1		
M51 – > 8 entries correct	1		
M52 – > 9 entries correct	1		
M53 – all entries correct	**1**		
SUB TOTAL:	**8**		

(3) Configure static routing for **Manchester** to access each of the respective networks including access to the two DNS servers. **[8 marks]**

ANS:
!!! Manchester

enable
configure terminal
hostname Manchester

ip route 8.8.8.0 255.255.255.0 10.1.1.1
ip route 216.58.192.0 255.255.255.0 10.1.1.1
ip route 1.1.1.0 255.255.255.0 172.16.100.2
ip route 104.16.41.0 255.255.255.0 172.16.100.2
ip route 64.28.140.0 255.255.255.0 10.1.1.1
ip route 10.223.253.0 255.255.255.0 172.16.100.2
ip route 192.168.1.0 255.255.255.0 10.1.1.1
ip route 10.2.2.0 255.255.255.252 10.1.1.1
ip route 192.168.10.0 255.255.255.0 10.1.1.1
ip route 192.168.11.0 255.255.255.0 10.1.1.1

end
copy running-config startup-config

Metric [Qu3 c) iv) (2)]	Marks	Awarded	Comments
M54 – > 2 entries correct	1		10 route entries in total
M55 – > 4 entries correct	1		Exit interface are acceptable for point to point links
M56 – > 5 entries correct	1		Other commands are not marked
M57 – > 6 entries correct	1		
M58 – > 7 entries correct	1		

M59 – > 8 entries correct	1		
M60 – > 9 entries correct	1		
M61 – all entries correct	**1**		
SUB TOTAL:	**8**		

(4) Configure static routing for **R2** to access each of the respective networks including access to the two DNS servers. **[8 marks]**

ANS:
!!! R2

enable
configure terminal
hostname R2

ip route 8.8.8.0 255.255.255.0 172.16.100.1
ip route 216.58.192.0 255.255.255.0 172.16.100.2
ip route 1.1.1.0 255.255.255.0 10.223.253.245
ip route 104.16.41.0 255.255.255.0 10.223.253.245
ip route 64.28.140.0 255.255.255.0 172.16.100.1

ip route 192.168.1.0 255.255.255.0 172.16.100.1
ip route 10.2.2.0 255.255.255.252 172.16.100.1
ip route 192.168.10.0 255.255.255.0 172.16.100.1
ip route 192.168.11.0 255.255.255.0 172.16.100.1
ip route 10.1.1.0 255.255.255.252 172.16.100.1
ip route 172.16.1.0 255.255.255.0 172.16.100.1
ip route 172.16.2.0 255.255.255.0 172.16.100.1

end
copy running-config startup-config

Metric [Qu3 c) iv) (4)]	**Marks**	**Awarded**	**Comments**
M62 – > 3 entries correct	1		12 route entries in total
M63 – > 5 entries correct	1		Exit interface are acceptable for point to point links
M64 – > 6 entries correct	1		Other commands are not marked
M65 – > 7 entries correct	1		
M66 – > 8 entries correct	1		
M67 – > 9 entries correct	1		
M68 – > 10 entries correct	1		
M69 – all entries correct	**1**		
SUB TOTAL:	**8**		

(5) Save your configurations for each router (record command in word doc). **[4 marks]**

ANS:

copy running-config startup-config

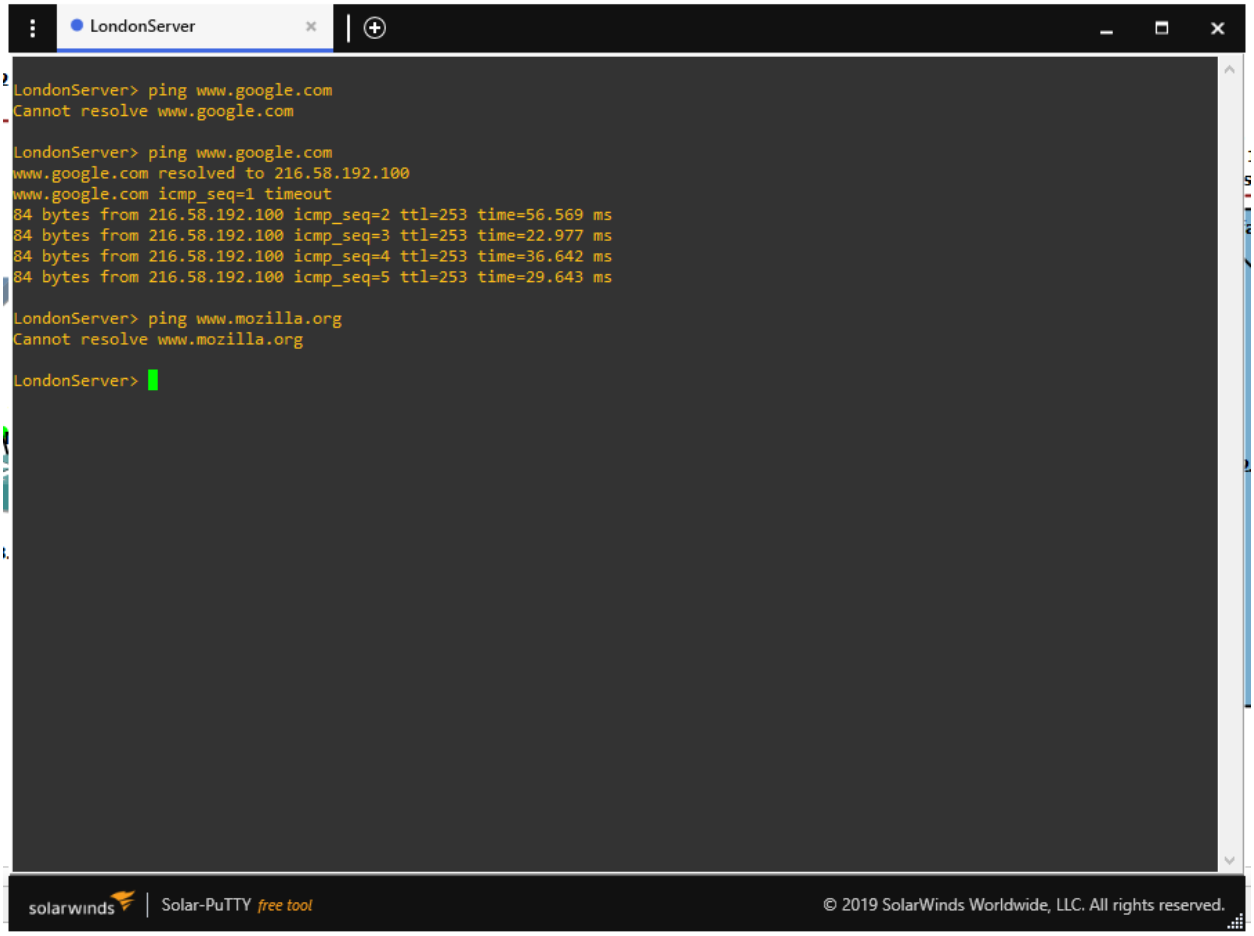
Metric [Qu3 c) iv) (4)]	Marks	Awarded	Comments
M70 – copy running-config startup-config command recorded for each device	4		show startup-config
SUB TOTAL:	**4**		

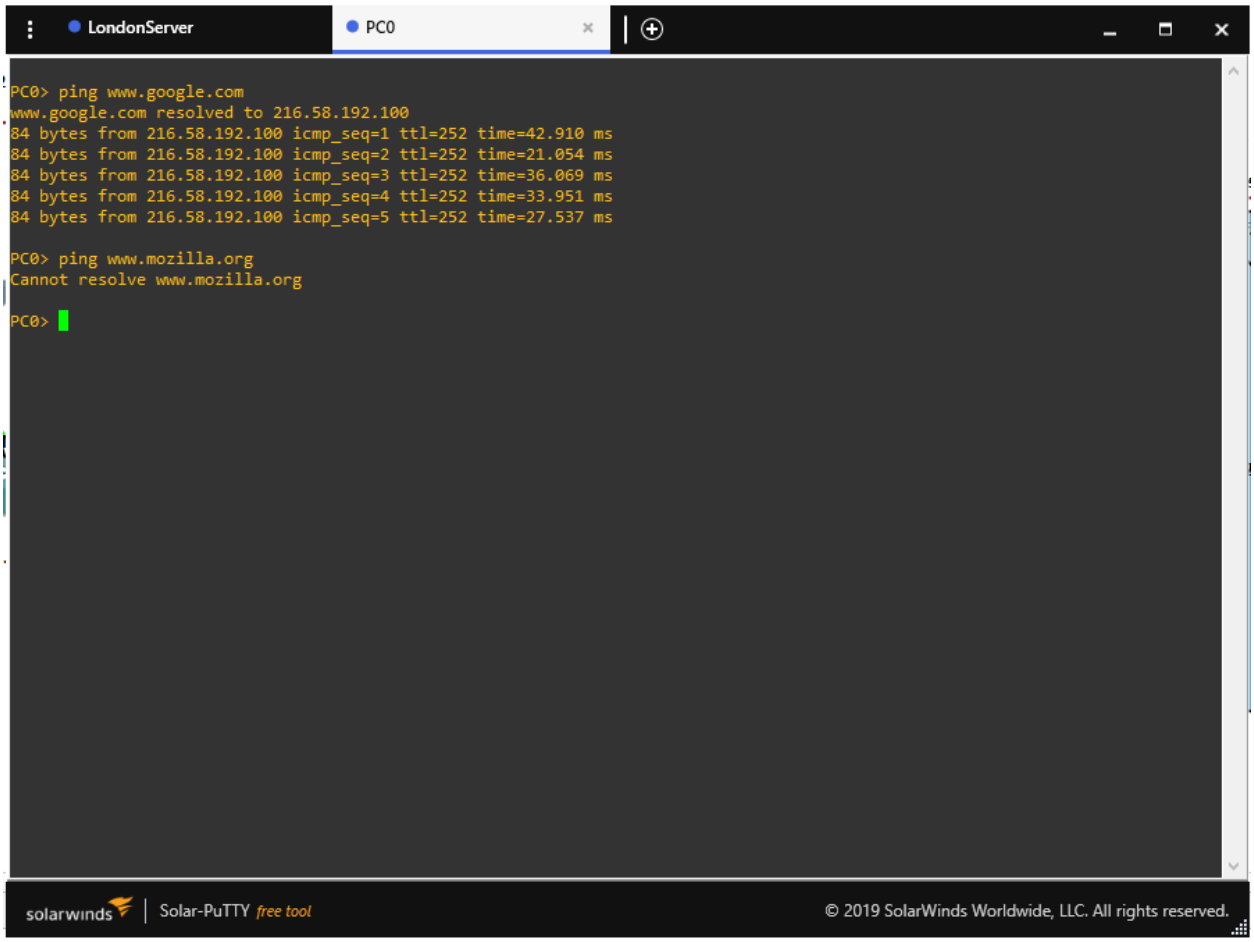
v) From each of the PCs and server,

(1) Ping both websites, record the commands used. **[5 marks]**

ANS:

Each server/computer
ping www.google.com
ping www.mozilla.org




LondonServer
PC0
PC0> ping www.google.com
www.google.com resolved to 216.58.192.100
84 bytes from 216.58.192.100 icmp_seq=1 ttl=252 time=42.910 ms
84 bytes from 216.58.192.100 icmp_seq=2 ttl=252 time=21.054 ms
84 bytes from 216.58.192.100 icmp_seq=3 ttl=252 time=36.069 ms
84 bytes from 216.58.192.100 icmp_seq=4 ttl=252 time=33.951 ms
84 bytes from 216.58.192.100 icmp_seq=5 ttl=252 time=27.537 ms
PC0> ping www.mozilla.org
Cannot resolve www.mozilla.org
PC0>
solarwinds
Solar-PuTTY free tool
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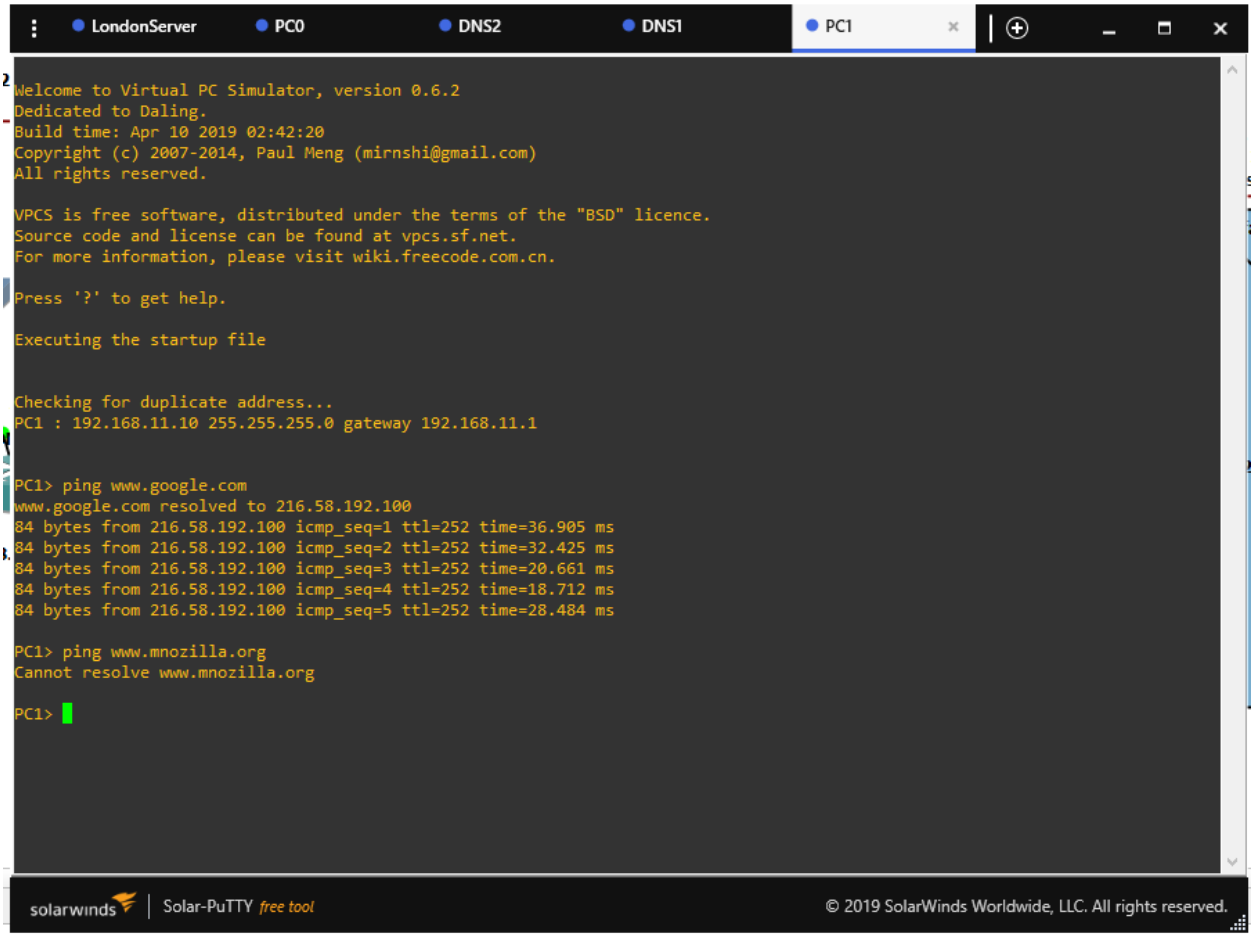
LondonServer
PC0
DNS2
DNS1
PC1
Welcome to Virtual PC Simulator, version 0.6.2
Dedicated to Daling.
Build time: Apr 10 2019 02:42:20
Copyright (c) 2007-2014, Paul Meng (mirnshi@gmail.com)
All rights reserved.
VPCS is free software, distributed under the terms of the "BSD" licence.
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.
Press '?' to get help.
Executing the startup file
Checking for duplicate address...
PC1 : 192.168.11.10 255.255.255.0 gateway 192.168.11.1
PC1> ping www.google.com
www.google.com resolved to 216.58.192.100
84 bytes from 216.58.192.100 icmp_seq=1 ttl=252 time=36.905 ms
84 bytes from 216.58.192.100 icmp_seq=2 ttl=252 time=32.425 ms
84 bytes from 216.58.192.100 icmp_seq=3 ttl=252 time=20.661 ms
84 bytes from 216.58.192.100 icmp_seq=4 ttl=252 time=18.712 ms
84 bytes from 216.58.192.100 icmp_seq=5 ttl=252 time=28.484 ms
PC1> ping www.mnozilla.org
Cannot resolve www.mnozilla.org
PC1>
solarwinds
Solar-PuTTY free tool
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LondonServer
PC0
DNS2
DNS1
PC1
PC2
PC2> ping www.google.com
www.google.com resolved to 216.58.192.100
84 bytes from 216.58.192.100 icmp_seq=1 ttl=251 time=34.802 ms
84 bytes from 216.58.192.100 icmp_seq=2 ttl=251 time=29.654 ms
84 bytes from 216.58.192.100 icmp_seq=3 ttl=251 time=34.866 ms
84 bytes from 216.58.192.100 icmp_seq=4 ttl=251 time=21.610 ms
84 bytes from 216.58.192.100 icmp_seq=5 ttl=251 time=32.498 ms
PC2> ping www.mozilla.org
Cannot resolve www.mozilla.org
PC2>
solarwinds
Solar-PuTTY free tool
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Metric [Qu3 c) iv) (4)]	Marks	Awarded	Comments
M71 – screenshot of ping operation for each website from each device	5		Both operations must be done or no marks awarded
SUB TOTAL:	**5**		

(2) Why were some of the websites not reachable? **[4 marks]**

ANS:

The DNS server (1.1.1.1) is not able to resolve the www.mozilla.org website.

Metric [Qu3 c) v) (2)]	Marks	Awarded	Comments
M72 –Unable to resolve website	2		
M73 – identify the DNS server with the issue	2		
SUB TOTAL:	**4**		

(3) Ping both websites using their ip address, record the commands used. **[5 marks]**

ANS:

ping 216.58.192.100
ping 104.16.41.2

Metric [Qu3 c) v) (3)]	Marks	Awarded	Comments
M74 – IP used for each website	2		Needs to be done on a few computers, not all.
M75 – ping command used	3		No screenshot required.
SUB TOTAL:	**5**		

(4) Was this able to work and why? **[2 marks]**

ANS:

Once the ip routes are working packets will be able to travel from client to server and back once we have the ip address of the servers. Pinging by name will not work if the DNS server cannot return an IP address.

Metric [Qu3 c) v) (4)]	Marks	Awarded	Comments
M76 – ip routes are working so ip packets will wok once you have ip address	2		
SUB TOTAL:	**2**		

(5) What would be a possible solution to resolve this? **[4 marks]**

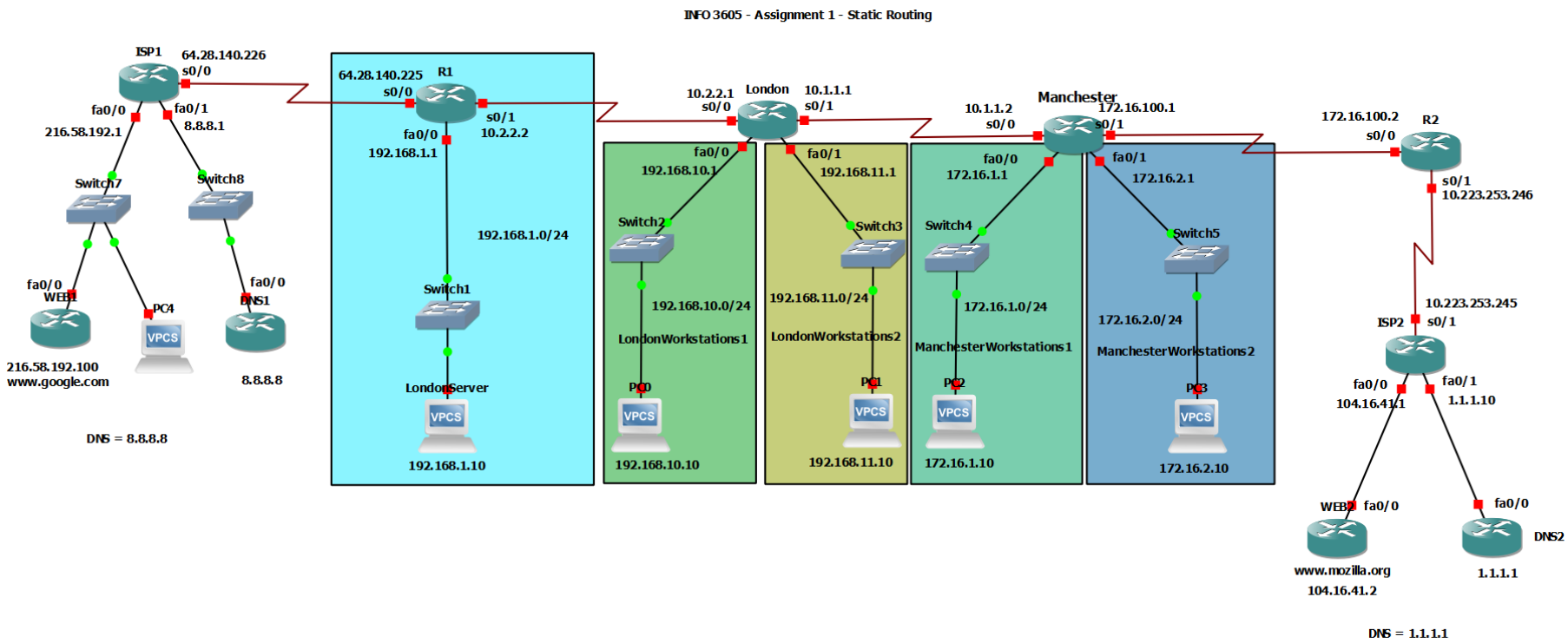
ANS:

Add DNS entries on the DNS server
OR
Change DNS server to one that works such as 8.8.8.8.
OR
Create a new DNS server with both entries and point the clients to this new server.

Metric [Qu3 c) v) (5)]	Marks	Awarded	Comments
M77 – correct answer or close enough	4		
SUB TOTAL:	**4**		

vi) Save your GNS3 project, and make a copy of the project folder. Use this copy to implement your solution stated in 3) c) v) (5) above. **[OPTIONAL]**

Network Diagram



IP Addressing and Networks

IP Addresses on interfaces for computers and routers facing the computer networks.

Name	Interface	IP Address	Subnet Mask	Gateway	DNS
London Server	Fa0	192.168.1.10	255.255.255.0	192.168.1.1	8.8.8.8
R1	Fa0/0	192.168.1.1	255.255.255.0	N/A	N/A
PC0	Fa0	192.168.10.10	255.255.255.0	192.168.10.1	8.8.8.8
London	Fa0/0	192.168.10.1	255.255.255.0	N/A	N/A
PC1	Fa0	192.168.11.10	255.255.255.0	192.168.11.1	1.1.1.1
London	Fa0/1	192.168.11.1	255.255.255.0	N/A	N/A
PC2	Fa0	172.16.1.10	255.255.255.0	172.16.1.1	8.8.8.8
Manchester	Fa0/0	172.16.1.1	255.255.255.0	N/A	N/A
PC3	Fa0	172.16.2.10	255.255.255.0	172.16.2.1	1.1.1.1
Manchester	Fa0/1	172.16.2.1	255.255.255.0	N/A	N/A

IP Addresses on interfaces for the routers (some information will be duplicated from above).

Name	Interface	IP Address	Subnet Mask	Comments
R1	Se0/0	64.26.140.225	255.255.255.0	Already set
R1	Fa0/0	192.168.1.1	255.255.255.0	
R1	Se0/1	10.2.2.2	255.255.255.252	/30 network
London	Se0/0	10.2.2.1	255.255.255.252	/30 network
London	Fa0/0	192.168.10.1	255.255.255.0	
London	Fa0/1	192.168.11.1	255.255.255.0	
London	Se0/1	10.1.1.1	255.255.255.252	/30 network
Manchester	Se0/0	10.1.1.2	255.255.255.252	/30 network
Manchester	Fa0/0	172.16.1.1	255.255.255.0	
Manchester	Fa0/1	172.16.2.1	255.255.255.0	
Manchester	Se0/1	172.16.100.1	255.255.255.252	/30 network
R2	Se0/0	172.16.100.2	255.255.255.252	/30 network
R2	Se0/1	10.223.253.246	255.255.255.0	Already set

All possible networks in the diagram. Information will be used when setting up routes.

Name	Network Address	Subnet Mask	Comments
DNS 8.8.8.8 Network	8.8.8.0	255.255.255.0	
www.google.com Network	216.58.192.0	255.255.255.0	
DNS 1.1.1.1 Network	1.1.1.0	255.255.255.0	
www.mozilla.org Network	104.16.41.0	255.255.255.0	
R1 - DNS 8.8.8.8 network	64.28.140.0	255.255.255.0	
R2 - DNS 1.1.1.1 Network	10.223.253.0	255.255.255.0	
R1 LondonServer Network	192.168.1.0	255.255.255.0	
R1 – London Router Network	10.2.2.0	255.255.255.252	/30 network

London Workstations1 Network	**192.168.10.0**	**255.255.255.0**	
London Workstation2 Network	**192.168.11.0**	**255.255.255.0**	
London – Manchester Router Network	**10.1.1.0**	**255.255.255.252**	**/30 network**
Manchester Workstations1 Network	**172.16.1.0**	**255.255.255.0**	
Manchester Workstations2 Network	**172.16.2.0**	**255.255.255.0**	
Manchester – R1 Router Network	**172.16.100.0**	**255.255.255.252**	**/30 network**

Commands Used

[*used this as an example to place your commands*]

!!! R1

```
enable
configure terminal

interface GigabitEthernet 0/1
ip address 192.168.1.1 255.255.255.0
shutdown
no shutdown

interface GigabitEthernet 0/0/0
ip address 10.2.2.2 255.255.255.252
shutdown
no shutdown

end
copy running-config startup-config
```

!!! London

```
enable
configure terminal

interface GigabitEthernet 0/0/0
ip address 10.2.2.1 255.255.255.252
shutdown
no shutdown

interface GigabitEthernet 0/0
ip address 192.168.10.1 255.255.255.0
shutdown
no shutdown

interface GigabitEthernet 0/1
ip address 192.168.11.1 255.255.255.0
shutdown
no shutdown

interface Serial 0/1/0
ip address 10.1.1.1 255.255.255.252
shutdown
no shutdown

end
copy running-config startup-config
```

```
!!! Manchester

enable
configure terminal

interface Serial 0/1/0
ip address 10.1.1.2 255.255.255.252
shutdown
no shutdown

interface GigabitEthernet 0/0
ip address 172.16.1.1 255.255.255.0
shutdown
no shutdown

interface GigabitEthernet 0/1
ip address 172.16.2.1 255.255.255.0
shutdown
no shutdown

interface GigabitEthernet 0/0/0
ip address 172.16.100.1 255.255.255.252
shutdown
no shutdown

end
copy running-config startup-config



!!! R2

enable
configure terminal

interface GigabitEthernet 0/0/0
ip address 172.16.100.2 255.255.255.252
shutdown
no shutdown

interface Serial 0/1/0
ip address 10.223.253.246 255.255.255.0
shutdown
no shutdown

end
copy running-config startup-config
```

```
!!! ================================================================


!!! R1

enable
configure terminal

ip route 8.8.8.0 255.255.255.0 64.28.140.226
ip route 216.58.192.0 255.255.255.0 64.28.140.226
ip route 1.1.1.0 255.255.255.0 10.2.2.1
ip route 104.16.41.0 255.255.255.0 10.2.2.1

ip route 10.223.253.0 255.255.255.0 10.2.2.1

ip route 10.2.2.0 255.255.255.252 10.2.2.1
ip route 192.168.10.0 255.255.255.0 10.2.2.1
ip route 192.168.11.0 255.255.255.0 10.2.2.1
ip route 10.1.1.0 255.255.255.252 10.2.2.1
ip route 172.16.1.0 255.255.255.0 10.2.2.1
ip route 172.16.2.0 255.255.255.0 10.2.2.1
ip route 172.16.100.0 255.255.255.252 10.2.2.1

end
copy running-config startup-config




!!! London

enable
configure terminal
hostname London

ip route 8.8.8.0 255.255.255.0 10.2.2.2
ip route 216.58.192.0 255.255.255.0 10.2.2.2
ip route 1.1.1.0 255.255.255.0 10.1.1.2
ip route 104.16.41.0 255.255.255.0 10.1.1.2
ip route 64.28.140.0 255.255.255.0 10.2.2.2
ip route 10.223.253.0 255.255.255.0 10.1.1.2
ip route 192.168.1.0 255.255.255.0 10.2.2.2

ip route 172.16.1.0 255.255.255.0 10.1.1.2
ip route 172.16.2.0 255.255.255.0 10.1.1.2
ip route 172.16.100.0 255.255.255.252 10.1.1.2

end
copy running-config startup-config
```

!!! Manchester

```
enable
configure terminal
hostname Manchester

ip route 8.8.8.0 255.255.255.0 10.1.1.1
ip route 216.58.192.0 255.255.255.0 10.1.1.1
ip route 1.1.1.0 255.255.255.0 172.16.100.2
ip route 104.16.41.0 255.255.255.0 172.16.100.2
ip route 64.28.140.0 255.255.255.0 10.1.1.1
ip route 10.223.253.0 255.255.255.0 172.16.100.2
ip route 192.168.1.0 255.255.255.0 10.1.1.1
ip route 10.2.2.0 255.255.255.252 10.1.1.1
ip route 192.168.10.0 255.255.255.0 10.1.1.1
ip route 192.168.11.0 255.255.255.0 10.1.1.1


end
copy running-config startup-config
```

!!! R2

```
enable
configure terminal
hostname R2

ip route 8.8.8.0 255.255.255.0 172.16.100.1
ip route 216.58.192.0 255.255.255.0 172.16.100.2
ip route 1.1.1.0 255.255.255.0 10.223.253.245
ip route 104.16.41.0 255.255.255.0 10.223.253.245
ip route 64.28.140.0 255.255.255.0 172.16.100.1

ip route 192.168.1.0 255.255.255.0 172.16.100.1
ip route 10.2.2.0 255.255.255.252 172.16.100.1
ip route 192.168.10.0 255.255.255.0 172.16.100.1
ip route 192.168.11.0 255.255.255.0 172.16.100.1
ip route 10.1.1.0 255.255.255.252 172.16.100.1
ip route 172.16.1.0 255.255.255.0 172.16.100.1
ip route 172.16.2.0 255.255.255.0 172.16.100.1


end
copy running-config startup-config
```

Assignment Notes

- The assignment is expected to contain a large number of pages due to screenshots.
- The assignment is due **two weeks** from the date of issue.
- All files should be **zipped** with the filename in the following format: **INFO3605 - Assignment 1 – [id number].zip**. Submission is done via **My e-learning** Assignment submission
- Full internet research may be required and be sure to cite your sources using http://www.citationmachine.net/ (recommended for this assignment) or https://www.zotero.org/ (more complex) or EndNote (http://libguides.uwi.edu/endnotex7, also complex) and also to create your list of references and/or bibliography.
- Plagiarism will **NOT** be tolerated:
    - https://sta.uwi.edu/resources/policies/Anti-Plagiarism.pdf .
    - https://sta.uwi.edu/resources/documents/postgrad/Policy_plagiarism.pdf .
    - Include Turnitin report (full and summary reports) in your zip file.

/ns