FACULTAD:	Tecnología Informática		
CARRERA:	Ingeniería en Sistemas		
ALUMNO/A:	Rodrigo Pereiro		
SEDE:	Centro	LOCALIZACIÓN:	Centro
ASIGNATURA:	Teleinformatica y Comunicaciones		
CURSO:	3 Año	TURNO:	OnLine
PROFESOR:	Ing. Semeria	FECHA:	16 Mayo 2023
TIEMPO DE RESOLUCIÓN:	De 2 de Junio 15hs A 3 de Junio 15hs	EXAMEN Parcial	1ro
MODALIDAD DE RESOLUCIÓN:		Escrito / Inividual	
RESULTADOS DE APRENDIZAJE:			

Envie su examen en un único PDF (NO ZIP)

Suba su examen a ULTRA

No espere a último minuto para enviar el examen ya que pueden existir imprevistos

Responda SOLO lo preguntado

Se aprueba con el 60% del puntaje máximo, en ese caso con nota de 4(cuatro)

1. Sea un paquete IP del mayor tamaño posible que se envía del host A al host B mediante el link 1 hasta el router R y de alli con el link 2 hasta el destino en el host HB

HA -------- MTU = 1500 -------- R -------- MTU = 640 -------- HB

Indique para cada link

   ☐ Cantidad de paquetes en el link 1:
   ☐ Cantidad de paqutes en el link 2:
   ☐ Tamaño del último paquete del link 1 (solo datos):
   ☐ Tamaño del último paquete del link 2 (solo datos):
   ☐ Offset del tercer paquete del link 1:
   ☐ Offset del tercer paquete del link 2:

 Deje indicado el desarrollo realizado:

Ejercicio N°1

Datagrama 65536 bytes   MTU - Header = 1500 - 20 = 1480

Header   (20)

$$\frac{65516 \mid 1480}{Resto = 396 \quad 44}$$

44 Paquetes completos

1 Paquete del Resto

45 Paquetes Totales

$$offset = (3-1) * (1500-20) = 2 * 1480 = 2960$$

Datagrama   1500   MTU - Header = 640 - 20 = 620

Header   20

$$\frac{1480 \mid 620}{Resto = 240 \quad 2}$$

Por cada Paquete de 1500 que recibe envia 3 Paquetes de 640

44 Paquetes 1500 x3 = 132

1 Paquete   416   =   1

Paquetes Totales   133

$$offset = (3-1) * (640-20) = 2 * 620 = 1240$$

Respuestas:

1. Cantidad de Paquetes en el link1 = 45
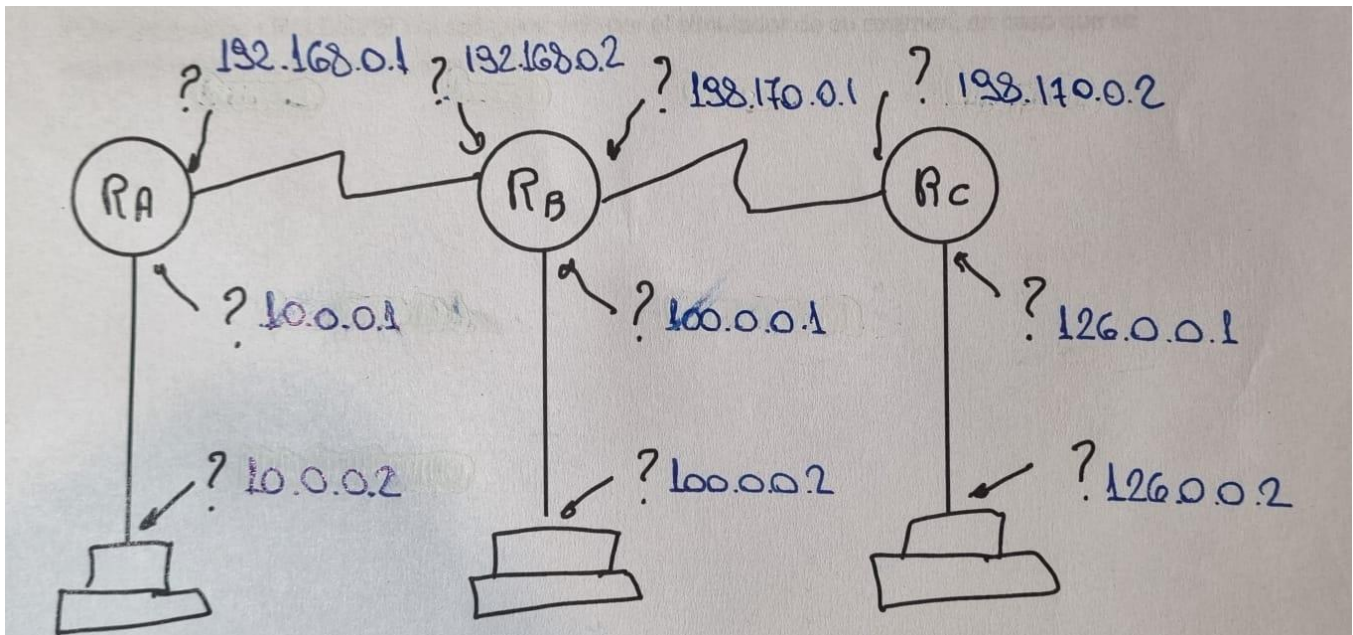
2. Cantidad de Paquetes en el link2 = 133

3. Tamaño ultimo Paquete link1 = 396 bytes

4. Tamaño ultimo Paquete link2 = 416 bytes

4. offset 3er Paquete link1
   2960

5. offset 3er Paquete link2
   1240

NOTA

2. Anote las direcciones IP en los puntos indicados. Las redes Ethernet son Clase B y las redes Seriales que interconectan los ruteadores son clase C

? 192.168.0.1   ? 192.168.0.2   ? 198.170.0.1   ? 198.170.0.2

RA   RB   Rc

? 10.0.0.1   ? 100.0.0.1   ? 126.0.0.1

? 10.0.0.2   ? 100.00.2   ? 126.0.0.2

3. Un paquete IP pasa de una red **A** a otra red idéntica **B**.

3. Un paquete IP pasa de una red **A** a otra red idéntica **B**.

¿Cambia en algo el Header del paquete IP al pasar de la red A a la B? Explique

Unicamente se modifica su tiempo de vida. Al cambiar de una red a otra no se modifica el resto del header.

¿Cambia en algo el Header Ethernet sobre el que se encapsula el paquete IP?

Al cambiar de red el Router crea un nuevo header modificando las direcciones Fisicas para enviar el paquete. Cambia las mac origen y destino, el c2c, y el tipo.

4. ¿Es posible que una red con dos servidores RARP asigne la misma dirección ip a dos host distintos?
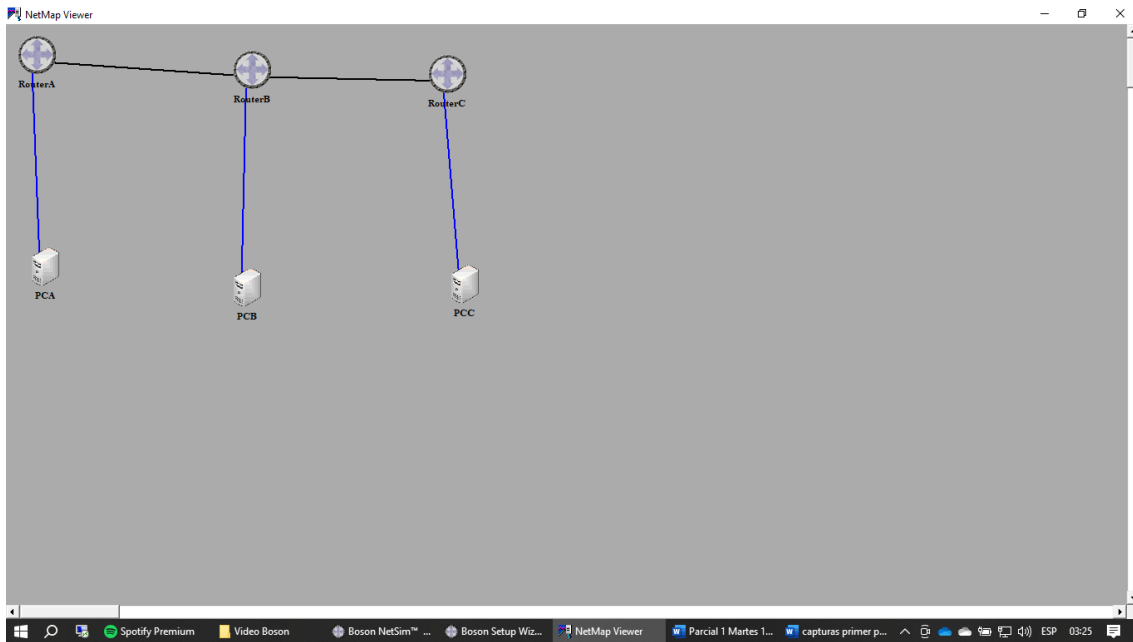

4. ¿Es posible que una red con dos servidores RARP asigne la misma dirección ip a dos host distintos? Explique.

Normalmente no es posible ya que los servidores RARP Trabajan con tablas de Asociación en las que Para cada dirección Física le corresponde una direcciónIP. Si llegara a ocurrir que dos direcciones Físicas obtienen una misma ip es Producto de una mala configuración en alguno de los servidores

5. Arme en el simulador de su elección la configuración dada, con las mismas IP escritas en el punto 2.

   a. Captura de la pantalla completa del modelo del simulador
   b. Captura donde se vean los ping exitosos entre todas las redes

Además guarde (NO ENVIE) el soft generado por el simulador de su examen, en caso que se requiera para una posterior parte oral.

```
Press RETURN to get started.




RouterA>
RouterA>ping 192.168.0.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
RouterA>ping 10.0.0.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
RouterA>ping 100.0.0.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 100.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
RouterA>ping 198.170.0.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 198.170.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
RouterA>ping 126.0.0.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 126.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms

RouterA>
```

File   Modes   Devices   Tools   Ordering   Language   Window   Help

eRouters   eSwitchs   eStations   Lab Navigator   NetMap   Remote Control

```
Press RETURN to get started.




RouterB>
RouterB>ping 100.0.0.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 100.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
RouterB>ping 192.168.0.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
RouterB>ping 10.0.0.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
RouterB>ping 198.170.0.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 198.170.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
RouterB>ping 126.0.0.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 126.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms

RouterB>
```

```
Press RETURN to get started.




RouterC>
RouterC>ping 126.0.0.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 126.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
RouterC>ping 198.170.0.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 198.170.0.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
RouterC>ping 100.0.0.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 100.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
RouterC>ping 192.168.0.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
RouterC>ping 10.0.0.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms

RouterC>
```

```
   Boson BOSS 5.0 IP Configuration
      Ethernet adapter Local Area Connection:
          Connection-specific DNS Suffix  . : boson.com
          IP Address. . . . . . . . . . . : 10.0.0.2
          Subnet Mask . . . . . . . . . . : 255.0.0.0
          Default Gateway . . . . . . . . : 10.0.0.1


You can also use winipcfg to configure the IP Address

C:>ping 100.0.0.2
Pinging 100.0.0.2 with 32 bytes of data:

Reply from 100.0.0.2: bytes=32 time=60ms TTL=241
Reply from 100.0.0.2: bytes=32 time=60ms TTL=241
Reply from 100.0.0.2: bytes=32 time=60ms TTL=241
Reply from 100.0.0.2: bytes=32 time=60ms TTL=241
Reply from 100.0.0.2: bytes=32 time=60ms TTL=241

Ping statistics for 100.0.0.2:     Packets: Sent = 5, Received = 5, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 50ms, Maximum =  60ms, Average =  55ms

C:>ping 126.0.0.2
Pinging 126.0.0.2 with 32 bytes of data:

Reply from 126.0.0.2: bytes=32 time=60ms TTL=241
Reply from 126.0.0.2: bytes=32 time=60ms TTL=241
Reply from 126.0.0.2: bytes=32 time=60ms TTL=241
Reply from 126.0.0.2: bytes=32 time=60ms TTL=241
Reply from 126.0.0.2: bytes=32 time=60ms TTL=241

Ping statistics for 126.0.0.2:     Packets: Sent = 5, Received = 5, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 50ms, Maximum =  60ms, Average =  55ms

C:>
```

```
   Boson BOSS 5.0 IP Configuration
      Ethernet adapter Local Area Connection:
          Connection-specific DNS Suffix  . : boson.com
          IP Address. . . . . . . . . . . : 100.0.0.2
          Subnet Mask . . . . . . . . . . : 255.0.0.0
          Default Gateway . . . . . . . . : 100.0.0.1


You can also use winipcfg to configure the IP Address

C:>ping 10.0.0.2
Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time=60ms TTL=241
Reply from 10.0.0.2: bytes=32 time=60ms TTL=241
Reply from 10.0.0.2: bytes=32 time=60ms TTL=241
Reply from 10.0.0.2: bytes=32 time=60ms TTL=241
Reply from 10.0.0.2: bytes=32 time=60ms TTL=241

Ping statistics for 10.0.0.2:     Packets: Sent = 5, Received = 5, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 50ms, Maximum =  60ms, Average =  55ms

C:>ping 126.0.0.2
Pinging 126.0.0.2 with 32 bytes of data:

Reply from 126.0.0.2: bytes=32 time=60ms TTL=241
Reply from 126.0.0.2: bytes=32 time=60ms TTL=241
Reply from 126.0.0.2: bytes=32 time=60ms TTL=241
Reply from 126.0.0.2: bytes=32 time=60ms TTL=241
Reply from 126.0.0.2: bytes=32 time=60ms TTL=241

Ping statistics for 126.0.0.2:     Packets: Sent = 5, Received = 5, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 50ms, Maximum =  60ms, Average =  55ms

C:>
```

```
Boson BOSS 5.0 IP Configuration
    Ethernet adapter Local Area Connection:
        Connection-specific DNS Suffix  . : boson.com
        IP Address. . . . . . . . . . . . : 126.0.0.2
        Subnet Mask . . . . . . . . . . . : 255.0.0.0
        Default Gateway . . . . . . . . . : 126.0.0.1


You can also use winipcfg to configure the IP Address

C:>ping 10.0.0.2
Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time=60ms TTL=241
Reply from 10.0.0.2: bytes=32 time=60ms TTL=241
Reply from 10.0.0.2: bytes=32 time=60ms TTL=241
Reply from 10.0.0.2: bytes=32 time=60ms TTL=241
Reply from 10.0.0.2: bytes=32 time=60ms TTL=241

Ping statistics for 10.0.0.2:    Packets: Sent = 5, Received = 5, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 50ms, Maximum =  60ms, Average =  55ms

C:>ping 126.0.0.2
Pinging 126.0.0.2 with 32 bytes of data:

Reply from 126.0.0.2: bytes=32 time=60ms TTL=241
Reply from 126.0.0.2: bytes=32 time=60ms TTL=241
Reply from 126.0.0.2: bytes=32 time=60ms TTL=241
Reply from 126.0.0.2: bytes=32 time=60ms TTL=241
Reply from 126.0.0.2: bytes=32 time=60ms TTL=241

Ping statistics for 126.0.0.2:    Packets: Sent = 5, Received = 5, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 50ms, Maximum =  60ms, Average =  55ms

C:>
```