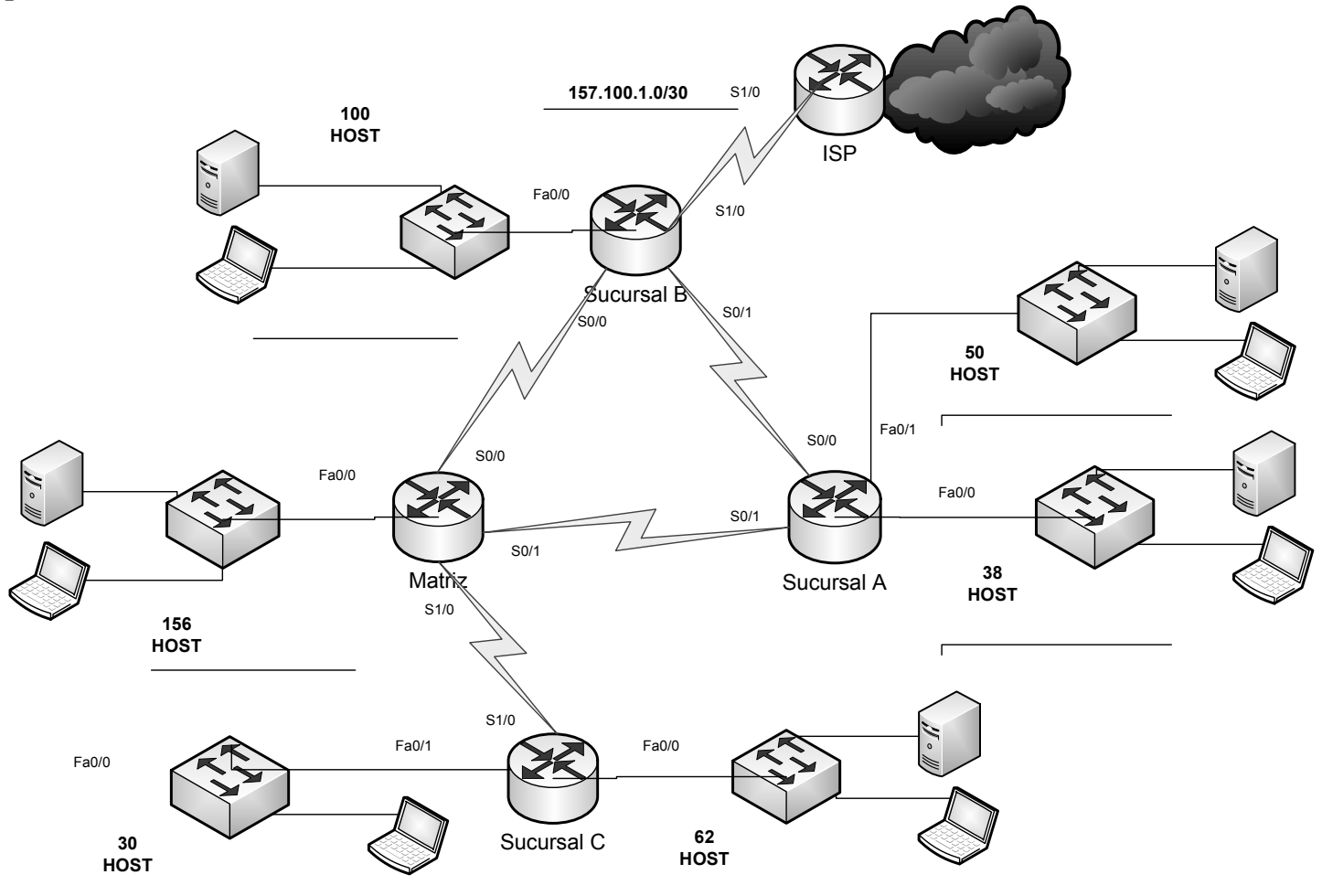


CONMUTACION Y ENRUTAMIENTO I EXAMEN FINAL

Nombre: _____
 Lecciones: _____
 Para: _____
 Laboratorios: _____
 Examen: _____

1. Dada la dirección IPv4 10.12.0.0/16 satisfacer el direccionamiento de la red dada, colocar las redes en el gráfico y completar la tabla. Asumiendo que las redes LAN tendrán un crecimiento de un 35% (20 puntos)



Información de Red					
Subred de Broadcast					
MATRIZ	S0/0				
	S0/1				
	S1/0				
	Fa0/0				
SUCURSAL A	S0/0				
	Fa0/0A				
	Fa0/1				
SUCURSAL B	S0/0				
	S0/1				
	S1/0				
SUCURSAL C	Fa0/0				
	Fa0/0C				

	Fa0/1				
--	-------	--	--	--	--

2. En base a las salidas del comando “show ip route” dibujar el correspondiente diagrama de la Red indicando los nombres de las interfaces (en caso de ser posible), las direcciones de red de los enlaces WAN y las LANs (20 puntos)

```
Uno#sh ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route
```

Gateway of last resort is not set

```
C    192.168.1.0/24 is directly connected, Serial0/0/0
C    192.168.2.0/24 is directly connected, Serial0/0/1
R    192.168.5.0/24 [120/2] via 192.168.2.2, 00:00:12, Serial0/0/1
                        [120/2] via 192.168.1.2, 00:00:13, Serial0/0/0
R    192.168.6.0/24 [120/2] via 192.168.1.2, 00:00:13, Serial0/0/0
                        [120/2] via 192.168.2.2, 00:00:12, Serial0/0/1
R    192.168.8.0/24 [120/1] via 192.168.2.2, 00:00:12, Serial0/0/1
R    192.168.9.0/24 [120/1] via 192.168.1.2, 00:00:13, Serial0/0/0
C    192.168.10.0/24 is directly connected, FastEthernet0/0
C    192.168.11.0/24 is directly connected, FastEthernet0/1
```

```
Dos#sh ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route
```

Gateway of last resort is not set

```
R    192.168.1.0/24 [120/1] via 192.168.2.1, 00:00:27, Serial0/0/1
C    192.168.2.0/24 is directly connected, Serial0/0/1
R    192.168.5.0/24 [120/1] via 192.168.8.1, 00:00:24, Serial0/0/0
R    192.168.6.0/24 [120/1] via 192.168.8.1, 00:00:24, Serial0/0/0
C    192.168.8.0/24 is directly connected, Serial0/0/0
R    192.168.9.0/24 [120/1] via 192.168.8.1, 00:00:24, Serial0/0/0
R    192.168.10.0/24 [120/1] via 192.168.2.1, 00:00:27, Serial0/0/1
R    192.168.11.0/24 [120/1] via 192.168.2.1, 00:00:27, Serial0/0/1
```

```
Tres#sh ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route
```

Gateway of last resort is not set

```
R    192.168.1.0/24 [120/1] via 192.168.9.1, 00:00:00, Serial0/0/1
R    192.168.2.0/24 [120/1] via 192.168.8.2, 00:00:26, Serial0/0/0
C    192.168.5.0/24 is directly connected, FastEthernet0/1
C    192.168.6.0/24 is directly connected, FastEthernet0/0
C    192.168.8.0/24 is directly connected, Serial0/0/0
C    192.168.9.0/24 is directly connected, Serial0/0/1
R    192.168.10.0/24 [120/2] via 192.168.9.1, 00:00:00, Serial0/0/1
                        [120/2] via 192.168.8.2, 00:00:26, Serial0/0/0
R    192.168.11.0/24 [120/2] via 192.168.9.1, 00:00:00, Serial0/0/1
                        [120/2] via 192.168.8.2, 00:00:26, Serial0/0/0
```

```
Cuatro#sh ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

C    192.168.1.0/24 is directly connected, Serial0/0/0
R    192.168.2.0/24 [120/1] via 192.168.1.1, 00:00:15, Serial0/0/0
R    192.168.5.0/24 [120/1] via 192.168.9.2, 00:00:09, Serial0/0/1
R    192.168.6.0/24 [120/1] via 192.168.9.2, 00:00:09, Serial0/0/1
R    192.168.8.0/24 [120/1] via 192.168.9.2, 00:00:09, Serial0/0/1
C    192.168.9.0/24 is directly connected, Serial0/0/1
R    192.168.10.0/24 [120/1] via 192.168.1.1, 00:00:15, Serial0/0/0
R    192.168.11.0/24 [120/1] via 192.168.1.1, 00:00:15, Serial0/0/0
```

3. Protocolo OSPF

3.1 Describir el proceso de aprendizaje de rutas mencionando los nuevos paquetes involucrados basados en el protocolo OSPF, cuales son los mensajes involucrados y cómo interactúan entre las diferentes áreas y describirlas (15 puntos)

3.2 Describir detalladamente el proceso de elección de Router DR y BDR dentro del área backbone del protocolo OSPF (10 puntos)

3.3 Describir cual es cómo funciona el algoritmo para la elección de la ruta más corta en OSPF (5 puntos)

4. Realice la configuración correcta de esta red para permitir comunicación total, utilice protocolo de Eigrp sistema autónomo 6450. Considere que el reloj del sistema es 64000 (30 puntos)

