CCNP BSCI(642-901) Lab ? OSPF

OSPF is configure on routers Amaniya and Lynaic. Amaniya's S0/0 interface and Lynaic's S0/1 interface are in Area 0. Lynaic's Loopback0 interface is in Area 2.
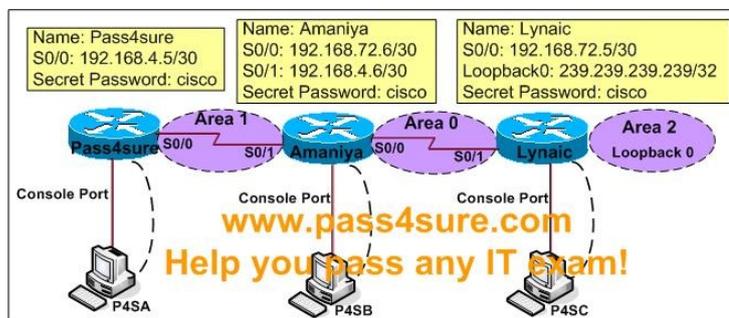
Your task is to configure the following:

Pass4sure's S0/0 interface in Area 1

Amaniya's S0/1 interface in Area 1

Use the appropriate mask such that ONLY Pass4sure's S0/0 and Amaniya's S0/1 could be in Area 1.

Area 1 should not receive any external or inter-area routes (except the default route).

Answer and Explanation:

First, we configure Pass4sure's S0/0 interface so that it belongs to Area 1. So, we have to find out which sub-network the IP address 192.168.4.5/30 (the IP of interface S0/0 of Pass4sure) belongs to. This address belongs to a subnetwork which has:

Increment: 4 (/30 = 255.255.255.252 or 1111 1111.1111 1111.1111 1111 1111.1111 1**1**00)
Network address: 192.168.4.4 (because 4 = 4 * 1 and 4 < 5)
Broadcast address: 192.168.4.7 (because 7 = 4 + 4 - 1) (It is not necessary to find out the broadcast address but we should know it)

The question requires that only Pass4sure's S0/0 and Amaniya's S0/1 could be in Area 1, therefore we must use a wildcard of 0.0.0.3 (this wildcard is equivalent with a subnet mask of /30) so that there are only 2 IP addresses can participate in area 1 (they are 192.168.4.5 & 192.168.4.6). The full command we use here is network 192.168.4.4 0.0.0.3 area 1

The question also requires that "Area 1 should not receive any external or inter-area routes (except the default route)". Recall that if we don't want the router to receive external routes, we have to stop LSA Type 5. And if we don't want to receive inter-area routes, we have to stop LSA Type 3 and Type 4. **Therefore we have to configure area 1 as a totally stubby area**. For your information, here is the definition of a totally stubby area:

"**Totally stubb area** - This area does not accept summary LSAs from other areas (types 3 or 4) or external summary LSAs (Type 5). Types 3,4 and 5 LSAs are replaced by the Area Border Router(ABR) with a default router. Totally stubby areas protect internal routers by minimizing the routing table and summarizing everything outside the area with a default route." (CCNP BSCI Official Exam Certification Guide, Fourth Edition)

In conclusion, we have to configure area 1 as a totally stubby area. We do that by configuring Pass4sure as stub and configuring Amaniya (ABR router) as a stub + "no-summary"suffix.

+ Configure Pass4sure router as a stub:

Pass4sure#configure terminal
Pass4sure(config)#router ospf 1

Allow network 192.168.4.4/30 to join Area 1, notice that you have to convert subnet mask into wildcard mask:

Pass4sure(config-router)#network 192.168.4.4 0.0.0.3 area 1
Configure Pass4sure as a stub:

Pass4sure(config-router)#area 1 stub
Pass4sure(config-router)#end
Pass4sure#copy running-config startup-config

+ Configure Amaniya router as a "totally stub":

Amaniya#configure terminal
Amaniya(config)#router ospf 1
Amaniya(config-router)#network 192.168.4.4 0.0.0.3 area 1

Make area 1 become a totally stubby area, notice that we can only use this command on ABR router:

Amaniya(config-router)#area 1 stub no-summary
Amaniya(config-router)#end
Amaniya#copy running-config startup-config

That is all, hope to helpful for you. Best Luck for ur BSCI 642-901 Exam.

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