**ICND1 FINAL LAB EXAM**

You are a network administrator in the company which has 3 sites. 2 sites have been dedicated for staff only (RED and BLUE) and the 3rd site has been dedicated to corporate servers.

Your task is to configure the network connections between these sites. You’ve been given an IPv4 address block of 200.100.0.0/24 and 100.100.100.0/29.

RED site has 120 users. BLUE site has 70 users and Server farm has 62 servers.

* Use OSPF as your routing protocol. DR will be R3 router. R2 will be BDR.
* Configure LAN IP ranges on R2 and R3 on Loopback interfaces.
* Configure LAN IP range on R1 on FastEthernet interface.
* Configure 1st usable IP address from each subnet to router ifs.
* Users in BLUE LAN should be able to obtain IPv4 address from DHCP server. One user in BLUE LAN is requesting that his Workstation has to be reachable on Public IP address.
* Your PC will be connected to BLUE LAN.

Company policy demands that access to Server farm should be limited.

* Only BLUE site users should have an access to web service on 1st usable IP address from Server Farm subnet.
* Discard all ingress packets to Server farm with source IP address from the local subnet.
* Drop all traffic from RED site except for ICMP traffic.
* Permit all other ingress traffic.

RED site has 20 users requesting IPv6 access to Server farm. IPv6 users in RED site have an IPv6 prefix 2001:DEAD:BEE:1::/64. 10 IPv6 enabled servers are using IPv6 addresses from a block 2001:BEEF:BEEF:1::/64.

* Use OSPFv3 routing protocol for IPv6 inter-connection. R2 will be DR.
* Use 2600:1:1:1::/64 in your IPv6 backbone.
* Configure 1st usable IPv6 address from each subnet to Loopback interface of appropriate router.

**Hints**

Use *ip ospf network point-to-point* on Loopback interfaces for OSPF to advertise whole range not just /32 address.

Use *ip http server* on R3 to enable Web service.

**Review**

You should be able to ping between any Loopback addresses and also from your PC.

Web access from BLUE LAN to R3 should work but not from RED LAN. Use *telnet x.x.x.x 80 /source-interface Loopback0* for diagnostics.

Command *show ip ospf neighbor* should verify R3 as DR and R2 as BDR.

Command *show ipv6 ospf neighbor* should verify R2 as DR.

ICMPv6 between RED LAN and Server farm (Loopback addresses) should work.