a) i) Broadcast add = 19.253.255.255

ii) Prefix Mask = 15

iii) 2nd Usable IP = 19.252.0.1

b) Network Add = 19.252.0.0/15

S_ONE   1240   19.252.0.0/21   255.255.248.0

S_TWO~~THREE~~   510   19.252.8.0/23   255.255.254.0

S_ONE   1241   2048   19.252.0.0/21

S_TWO   511   1024   19.252.8.0/22

S_THREE   6   8   19.252.12.0/29

R1-R3   4   4   19.252.12.8/30

R3-R2   4   4   19.252.12.12/30

a) The admin can use "traceroute", ~~and also use ping~~
~~floods~~

b) This is achieved via ping flood or ICMP flood

c) This is achieved through port forwarding

d) (A) The DHCP config sets the default-router 210.10.10.1)
but the HQ router's interface fa0/1 is actualy
configured with 210.10.10.15.

(B) The HQ router pool covers 210.10.10.0/24 but
only .12 is excluded.

(C) The PCO is in 193.10.10.0/24 network. DHCP
broadcast requests from PCO are blocked by
the BR router. To fix this, the BR router
interface fa0/0 needs an ip-helper-add num
pointing to the HQ routers Ip.

a) shortest path from Node a :

Node a → b $(a \to c \to b) = 3$

a → c $= 2$

a → d $(\cancel{a \to c \to b \to d}) \, \cancel{9} = 8$

a → e $(\cancel{a \to b \to d}) = \cancel{11}$ $\quad a \to c \to b \to d \to e = 10$

a → z $(a \to b \to d \to z) = 16$

b) In LSR, they are Hello Packets.

c) i) Generally considered bad for large networks

ii) 1) Slower convergence to compared to LSR

2) Count-to-infinity problem in DVR

Ans of 4

a) i) The first command sets the default route.

ii) This creates a floating static route.

b) If Router B user single summary route pointing to Router A, it won't be able to send data to Router C. as Router C is connected via Router B.

c) (i) R1: ip route 167.18.10.0 255.255.255.240

192.168.10.2

R2: ip route 167.18.10.0 255.255.255.240

10.10.10.1

(ii) ip route 167.18.10.0 255.255.255.240 10.10.20.1

10

Ans of 5

a) Yes. Incomptable protocols. Solution, Dual Stack, Tunneling or Transalation.

b) FF10; FF:: A@19:0:0:F000

c) FF80: 10.10:; F2B2: F0FF; FEEA:DF35

d) (i) False. Stateful ~~DHCP server~~ DHCPV6 also requires an ICMPV6 RA withe the M flag set to tell the ellent to use DHCPV6.

(iv) Ensures that the unicant IPV6 addrun assigned to an interface is unique on the local link before it is used, preventing a ddr. conflict.

a) i) ARP stays within the local network. Host A sends an ARP req for the Default gateway's MAC add, not the final dest's MAC.

ii) ~~Add leaving a Host A~~ Source MAC: Host A M~~
                                Dest MAC: Router
                                         interface
                                           MAC

b) i) Switches will broadcast the frame to all ports except the source.

ii) MAC of Host A → Port F1/0

c) i) unicast.

ii) MAC add is tied to the hardware and remains the same regardless of which network the device connects to.