**Questão 1**

**R1**

conf t

ip cef

mpls ip

int f0/0

no shut

ip address 10.1.1.5 255.255.255.252

ip ospf 1 area 0

mpls ip

int f0/1

no shut

ip address 10.1.1.9 255.255.255.252

ip ospf 1 area 0

mpls ip

int Lo0

ip address 10.10.10.1 255.255.255.255

ip ospf 1 area 0

int Lo1

ip address 10.1.1.101 255.255.255.255

ip ospf 1 area 0

end

write

**R2**

conf t

ip cef

mpls ip

int f0/0

no shut

ip address 10.1.1.10 255.255.255.252

ip ospf 1 area 0

mpls ip

int f0/1

no shut

ip address 10.1.1.17 255.255.255.252

ip ospf 1 area 0

mpls ip

int Lo0

ip address 10.10.10.2 255.255.255.255

ip ospf 1 area 0

end

write

**R3**

conf t

ip cef

mpls ip

int f0/0

no shut

ip address 10.1.1.18 255.255.255.252

ip ospf 1 area 0

mpls ip

int f0/1

no shut

ip address 10.1.1.13 255.255.255.252

ip ospf 1 area 0

mpls ip

int Lo0

ip address 10.10.10.3 255.255.255.255

ip ospf 1 area 0

int Lo1

ip address 10.1.1.103 255.255.255.255

ip ospf 1 area 0

end

write

**R4**

conf t

ip cef

mpls ip

int f0/0

no shut

ip address 10.1.1.6 255.255.255.252

ip ospf 1 area 0

mpls ip

int f0/1

no shut

ip address 10.1.1.14 255.255.255.252

ip ospf 1 area 0

mpls ip

int Lo0

ip address 10.10.10.4 255.255.255.255

ip ospf 1 area 0

end

write

**Questões 4 e 5**

**R1**

conf t

ip cef

mpls traffic-eng tunnels

int f0/0

no shut

ip address 10.1.1.5 255.255.255.252

ip ospf 1 area 0

mpls traffic-eng tunnels

ip rsvp bandwidth 512 512

int f0/1

no shut

ip address 10.1.1.9 255.255.255.252

ip ospf 1 area 0

mpls traffic-eng tunnels

ip rsvp bandwidth 512 512

int Lo0

ip address 10.10.10.1 255.255.255.255

ip ospf 1 area 0

int Lo1

ip address 10.1.1.101 255.255.255.255

ip ospf 1 area 0

router ospf 1

mpls traffic-eng area 0

mpls traffic-eng router-id Loopback 0

end

write

**R2**

conf t

ip cef

mpls traffic-eng tunnels

int f0/0

no shut

ip address 10.1.1.10 255.255.255.252

ip ospf 1 area 0

mpls traffic-eng tunnels

ip rsvp bandwidth 512 512

int f0/1

no shut

ip address 10.1.1.17 255.255.255.252

ip ospf 1 area 0

mpls traffic-eng tunnels

ip rsvp bandwidth 512 512

int Lo0

ip address 10.10.10.2 255.255.255.255

ip ospf 1 area 0

router ospf 1

mpls traffic-eng area 0

mpls traffic-eng router-id Loopback 0

end

write

**R3**

conf t

ip cef

mpls traffic-eng tunnels

int f0/0

no shut

ip address 10.1.1.18 255.255.255.252

ip ospf 1 area 0

mpls traffic-eng tunnels

ip rsvp bandwidth 512 512

int f0/1

no shut

ip address 10.1.1.13 255.255.255.252

ip ospf 1 area 0

mpls traffic-eng tunnels

ip rsvp bandwidth 512 512

int Lo0

ip address 10.10.10.3 255.255.255.255

ip ospf 1 area 0

int Lo1

ip address 10.1.1.103 255.255.255.255

ip ospf 1 area 0

router ospf 1

mpls traffic-eng area 0

mpls traffic-eng router-id Loopback 0

end

write

**R4**

conf t

ip cef

mpls traffic-eng tunnels

int f0/0

no shut

ip address 10.1.1.6 255.255.255.252

ip ospf 1 area 0

mpls traffic-eng tunnels

ip rsvp bandwidth 512 512

int f0/1

no shut

ip address 10.1.1.14 255.255.255.252

ip ospf 1 area 0

mpls traffic-eng tunnels

ip rsvp bandwidth 512 512

int Lo0

ip address 10.10.10.4 255.255.255.255

ip ospf 1 area 0

router ospf 1

mpls traffic-eng area 0

mpls traffic-eng router-id Loopback 0

end

write

**Questão 6**

**R3**

conf t

interface Tunnel 1

ip unnumbered Loopback0

tunnel destination 10.10.10.1

tunnel mode mpls traffic-eng

tunnel mpls traffic-eng bandwidth 150

tunnel mpls traffic-eng path-option 1 explicit name path1

interface Tunnel 2

ip unnumbered Loopback0

tunnel destination 10.10.10.1

tunnel mode mpls traffic-eng

tunnel mpls traffic-eng bandwidth 150

tunnel mpls traffic-eng path-option 1 explicit name path2

ip explicit-path name path1 enable

next-address 10.1.1.14

next-address 10.1.1.5

ip explicit-path name path2 enable

next-address 10.1.1.17

next-address 10.1.1.9

end

write

**R1**

conf t

interface Tunnel 3

ip unnumbered Loopback0

tunnel destination 10.10.10.3

tunnel mode mpls traffic-eng

tunnel mpls traffic-eng bandwidth 150

tunnel mpls traffic-eng path-option 1 explicit name path1

interface Tunnel 4

ip unnumbered Loopback0

tunnel destination 10.10.10.3

tunnel mode mpls traffic-eng

tunnel mpls traffic-eng bandwidth 150

tunnel mpls traffic-eng path-option 1 explicit name path2

ip explicit-path name path1 enable

next-address 10.1.1.6

next-address 10.1.1.13

ip explicit-path name path2 enable

next-address 10.1.1.10

next-address 10.1.1.18

end

write

**Questão 7**

**R3**

conf t

ip route 10.1.1.101 255.255.255.255 Tunnel 1

ip route 10.10.10.1 255.255.255.255 Tunnel 2

end

write

**R1**

conf t

ip route 10.1.1.103 255.255.255.255 Tunnel 3

ip route 10.10.10.3 255.255.255.255 Tunnel 4

end

write

**Questão 8**

**R3**

conf t

no ip route 10.1.1.101 255.255.255.255 Tunnel 1

no ip route 10.10.10.1 255.255.255.255 Tunnel 2

interface Tunnel 1

tunnel mpls traffic-eng autoroute announce

interface Tunnel 2

tunnel mpls traffic-eng autoroute announce

end

write

**R1**

conf t

no ip route 10.1.1.103 255.255.255.255 Tunnel 3

no ip route 10.10.10.3 255.255.255.255 Tunnel 4

interface Tunnel 3

tunnel mpls traffic-eng autoroute announce

interface Tunnel 4

tunnel mpls traffic-eng autoroute announce

end

write

**Questão 9**

**R3**

Interface tunnel 2

tunnel mpls traffic-eng autoroute metric 5

**Questão 10**

**R1**

conf t

interface Tunnel 7

ip unnumbered Loopback0

tunnel destination 10.10.10.3

tunnel mode mpls traffic-eng

tunnel mpls traffic-eng autoroute announce

tunnel mpls traffic-eng bandwidth 100

tunnel mpls traffic-eng path-option 1 dynamic

interface Tunnel 8

ip unnumbered Loopback0

tunnel destination 10.10.10.3

tunnel mode mpls traffic-eng

tunnel mpls traffic-eng autoroute announce

tunnel mpls traffic-eng auto-bw

tunnel mpls traffic-eng path-option 1 dynamic

end

write

**R3**

conf t

interface Tunnel 5

ip unnumbered Loopback0

tunnel destination 10.10.10.1

tunnel mode mpls traffic-eng

tunnel mpls traffic-eng autoroute announce

tunnel mpls traffic-eng bandwidth 100

tunnel mpls traffic-eng path-option 1 dynamic

interface Tunnel 6

ip unnumbered Loopback0

tunnel destination 10.10.10.1

tunnel mode mpls traffic-eng

tunnel mpls traffic-eng autoroute announce

tunnel mpls traffic-eng auto-bw

tunnel mpls traffic-eng path-option 1 dynamic

end

write