DEPARTAMENTO DE ELETRÓNICA, TELECOMUNICAÇÕES E INFORMÁTICA

LICENCIATURA EM ENGENHARIA DE COMPUTADORES E INFORMÁTICA

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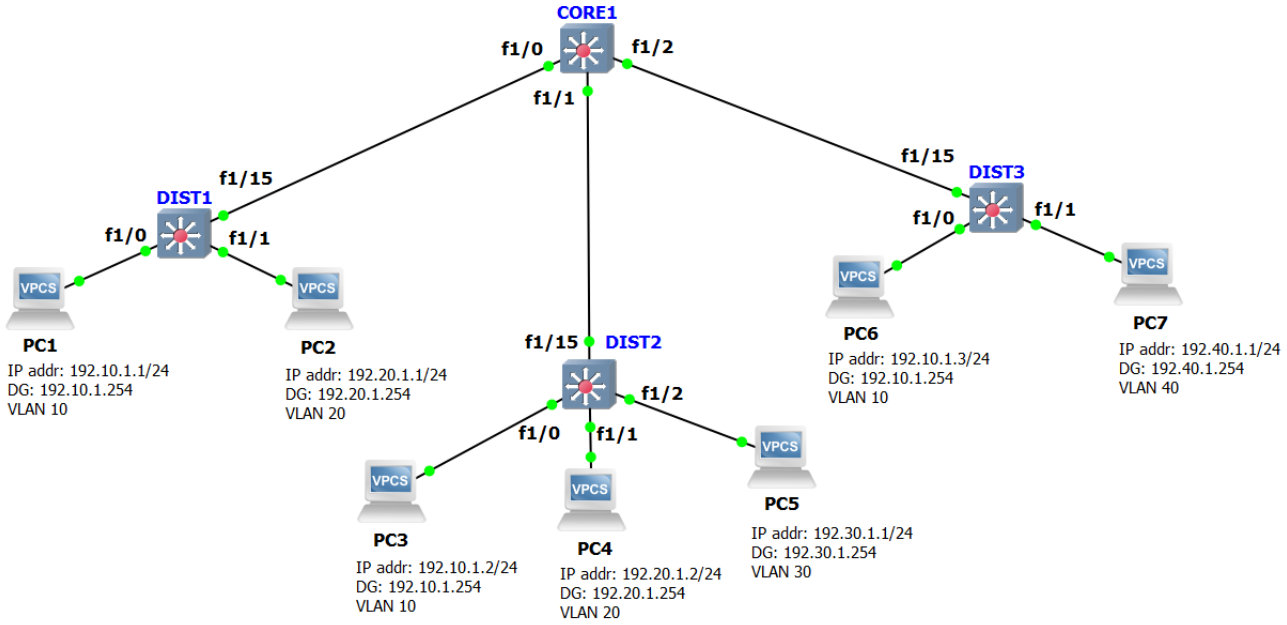
REDES DE COMUNICAÇÕES II

STUDENTS AUTO-EVALUATION OF LABORATORY GUIDE NO. 1

Scenario 1

Consider the following network with a centralized IP routing approach (i.e., CORE1 is the default gateway of all VLANs) and with all trunk links supporting all existing VLANs.



Classify as True (T) or False (F) each of the following statements:

☐ a) The IP routing table of CORE1 is:

```
C    192.10.10.0/24 is directly connected, Vlan10
C    192.20.10.0/24 is directly connected, Vlan20
C    192.30.10.0/24 is directly connected, Vlan30
C    192.40.10.0/24 is directly connected, Vlan40
```

☐ b) In a ping from PC1 to the IP address 192.10.1.3, an ICMP Echo Reply packet is captured in link DIST2-CORE1 in VLAN 10.

☐ c) In a ping from PC2 to the IP address 192.10.1.1, an ICMP Echo Reply packet in VLAN 10 and an ICMP Echo Request in VLAN 20 are captured in link DIST1-CORE1.

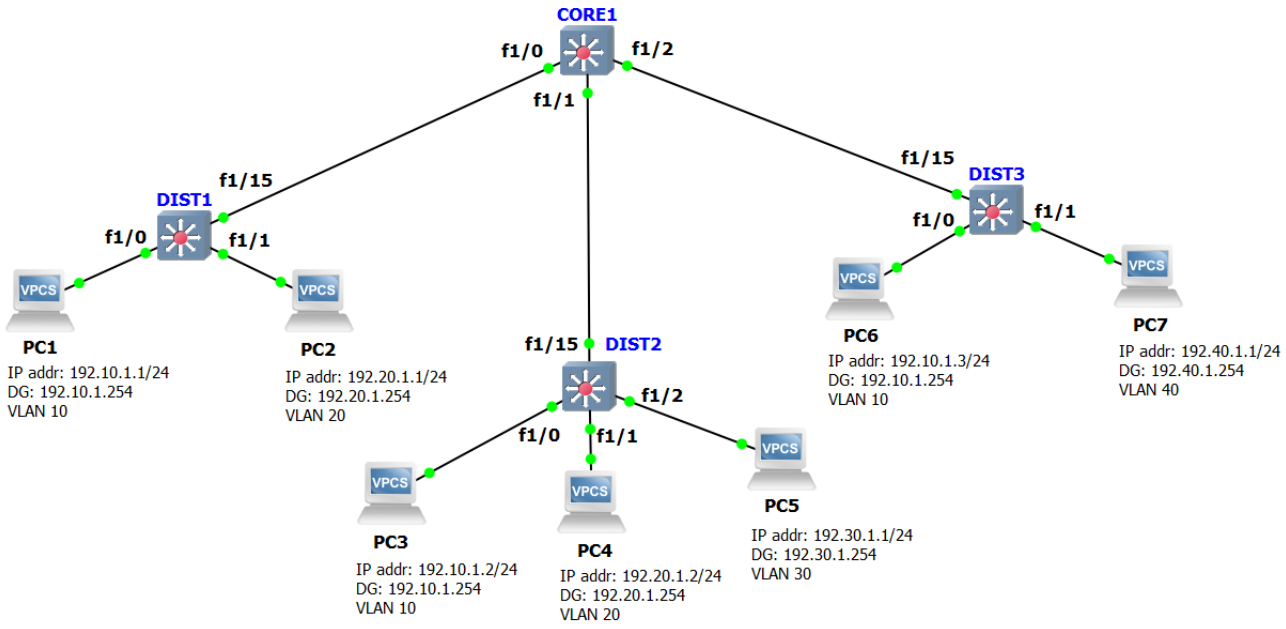
☐ d) A ping from PC7 to the IP address 192.10.1.254 fails.

☐ e) In a ping from PC5 to the IP address 192.30.1.2, an ARP Request packet is captured in link DIST3-CORE1.

☐ f) Link DIST1-CORE1 belongs to the broadcast domain of VLAN 40.

Scenario 2

Consider the following network with a distributed IP routing approach (i.e., CORE1 is the default gateway of end-to-end VLANs; DIST2 and DIST3 are the default gateways of the corresponding local VLANs) with trunk links supporting only the minimum required VLANs. There is an interconnection VLAN and the appropriate static IP routes are configured to have full IP connectivity.



In this scenario, the routing table of DIST2 is:

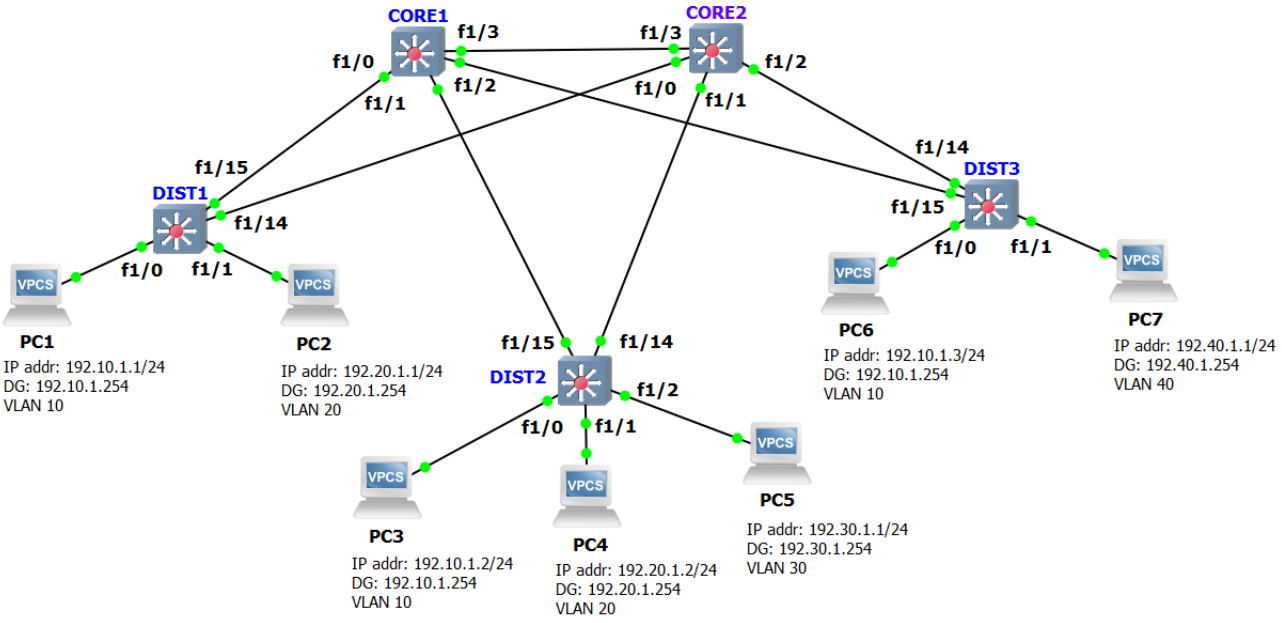
```
C    192.10.10.0/24 is directly connected, Vlan100
S    192.10.1.0/24 [1/0] via 192.10.10.1
S    192.20.1.0/24 [1/0] via 192.10.10.1
C    192.30.1.0/24 is directly connected, Vlan30
S    192.40.1.0/24 [1/0] via 192.10.10.5
```

Classify as True (T) or False (F) each of the following statements:

- ☐ a) The interconnection VLAN has IP address 192.10.10.0/25.
- ☐ b) In a ping from PC1 to the IP address 192.40.1.1, an ICMP Echo Reply packet in VLAN 10 is captured in link DIST3-CORE1.
- ☐ c) In a ping from PC2 to the IP address 192.10.1.1, there are no ICMP packets captured in link DIST1-CORE1.
- ☐ d) In a ping from PC5 to the IP address 192.20.1.3, ARP Request packets are captured in link DIST3-CORE1 in VLAN 20.
- ☐ e) In a ping from PC5 to the IP address 192.10.10.5, an ICMP Echo Reply packet in VLAN 30 is captured in link DIST3-CORE1.
- ☐ f) Link DIST1-CORE1 belongs to the broadcast domain of VLAN 100.

Scenario 3

Consider the following network where CORE1 is the default gateway of VLANs 30 and 40 and CORE2 is the default gateway of VLANs 10 and 20. There is an interconnection VLAN, and the appropriate static IP routes are configured to have full IP connectivity. All trunk links support all existing VLANs.



In this scenario, the spanning tree brief information of VLAN 10 in CORE2 is:

```
VLAN10
  Spanning tree enabled protocol ieee
  Root ID     Priority    16384
              Address     c205.43bc.0001
              Cost        19
              Port        44 (FastEthernet1/3)
              Hello Time   2 sec  Max Age 20 sec  Forward Delay 15 sec
  Bridge ID   Priority    32768
              Address     c204.3c28.0001
              Hello Time   2 sec  Max Age 20 sec  Forward Delay 15 sec
              Aging Time 300
Interface                                    Designated
Name              Port ID Prio Cost  Sts Cost  Bridge ID            Port ID
----------------- ------- ---- ----- --- ----- -------------------- -------
FastEthernet1/0    128.41  128    19  BLK    10 32768 c202.19b4.0000 128.55
FastEthernet1/1    128.42  128    19  BLK    15 32768 c203.32e0.0000 128.55
FastEthernet1/2    128.43  128    19  BLK    10 32768 c201.196c.0000 128.55
FastEthernet1/3    128.44  128    19  FWD     0 16384 c205.43bc.0001 128.44
```

Classify as True (T) or False (F) each of the following statements concerning VLAN 10:

- [ ] a) The root bridge has priority 16384.
- [ ] b) The port cost of `f1/15` of DIST1 is 19.
- [ ] c) The interface `f1/14` of DIST2 is a root interface.
- [ ] d) In a ping from PC7 to the IP address 192.10.1.1, a ICMP Echo Request is captured in link CORE1-CORE2.
- [ ] e) Changing the port cost of `f1/2` of CORE2 to 12 does not change the VLAN 10 spanning tree.