Answer Sheet **A**

11/03/2020

Circle the correct answer

Time allowed: 2hours

1	A	B	C	D	E	F
2	A	B	C	D	E	F
3	A	B	C	D	E	F
4	A	B	C	D	E	F
5	A	B	C	D	E	F
6	A	B	C	D	E	F
7	A	B	C	D	E	F
8	A	B	C	D	E	F
9	A	B	C	D	E	F
10	A	B	C	D	E	F
11	A	B	C	D	E	F
12	A	B	C	D	E	F
13	A	B	C	D	E	F
14	A	B	C	D	E	F
15	A	B	C	D	E	F
16	A	B	C	D	E	F
17	A	B	C	D	E	F
18	A	B	C	D	E	F
19	A	B	C	D	E	F
20	A	B	C	D	E	F
21	A	B	C	D	E	F
22	A	B	C	D	E	F
23	A	B	C	D	E	F
24	A	B	C	D	E	F
25	A	B	C	D	E	F

26	A	B	C	D	E	F
27	A	B	C	D	E	F
28	A	B	C	D	E	F
29	A	B	C	D	E	F
30	A	B	C	D	E	F
31	A	B	C	D	E	F
32	A	B	C	D	E	F
33	A	B	C	D	E	F
34	A	B	C	D	E	F
35	A	B	C	D	E	F
36	A	B	C	D	E	F
37	A	B	C	D	E	F
38	A	B	C	D	E	F
39	A	B	C	D	E	F
40	A	B	C	D	E	F

Score

كلية التقنية الالكترونية
College of Electronic Technology - Tripoli

القســم: الاتصالات
لطلبة الفصل: السادس

أسئلة الامتحان النهائي لمادة : Scaling Networks
رمز المادة: CN303   التاريخ: 11/03/2020

اسم الأستاذ/المنسق : د. حيدر السويح
رقم القيد ....

الزمن: ساعتان
المجموعة : ....

الفصل الدراسي : خريف 2019م
اسم الطالب :.............................

A

Time allowed: TWO hours

Answer All questions

All questions carry equal weight

1. In a switch that disables VTP, an engineer configures the commands *vlan 30* and *shutdown vlan 30*. Which answers should be true about this switch? (Choose two answers.)
A. The **show vlan brief** command should list VLAN 30.
B. The **show running-config** command should list VLAN 30.
C. The switch should forward frames that arrive in access ports in VLAN 30.
D. The switch should forward frames that arrive in trunk ports tagged with VLAN 30.

2. Which of the following facts determines how often a nonroot bridge or switch sends an STP Hello BPDU message?
A. The Hello timer as configured on that switch.
B. The Hello timer as configured on the root switch.
C. It is always every 2 seconds.
D. The switch reacts to BPDUs received from the root switch by sending another
E. BPDU 2 seconds after receiving the root BPDU.

3. Examine the following output from the show spanning-tree vlan 5 command, which describes a root switch in a LAN. Which answers accurately describe facts related to the root's bridge ID?
```
SW1# show spanning-tree vlan 5
VLAN0005
    Spanning tree enabled protocol rstp
    Root ID   Priority 32773
              Address 1833.9d7b.0e80
              Cost 15
              Port 25 (GigabitEthernet0/1)
              Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
```
A. The system ID extension value, in decimal, is 5.
B. The root's configured priority value is 32773.
C. The root's configured priority value is 32768.
D. The system ID extension value, in hexadecimal, is 1833.9d7b.0e80.

4. A LAN design uses a Layer 3 EtherChannel between two switches SW1 and SW2, with port-channel interface 1 used on both switches. SW1 uses ports G0/1, G0/2, and G0/3 in the channel. Which of the following are true about SW1's configuration to make the channel be able to route IPv4 packets correctly? (Choose two answers.)
A. The **ip address** command must be on the port-channel 1 interface.
B. The **ip address** command must be on interface G0/1 (lowest numbered port).
C. The port-channel 1 interface must be configured with the **no switchport** command.
D. Interface G0/1 must be configured with the **routed port** command.

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5. Two routers using OSPFv2 have become neighbors and exchanged all LSAs. As a result, Router R1 now lists some OSPF-learned routes in its routing table. Which of the following best describes how R1 uses those recently learned LSAs to choose which IP routes to add to its IP routing table?

A. Each LSA lists a route to be copied to the routing table.
B. Some LSAs list a route that can be copied to the routing table.
C. Run some SPF math against the LSAs to calculate the routes.
D. R1 does not use the LSAs at all when choosing what routes to add.

6. Which of the following OSPF neighbor states is expected when the exchange of topology information is complete between two OSPF neighbors?

A. 2-way
B. Full
C. Up/up
D. Final
E. Loading and Full

7. A company has a small/medium-sized network with 15 routers and 40 subnets and uses OSPFv2. Which of the following is considered an advantage of using a single-area design as opposed to a multiarea design?

A. It reduces the processing overhead on most routers.
B. Status changes to one link may not require SPF to run on all other routers.
C. It allows for simpler planning and operations.
D. It allows for route summarization, reducing the size of IP routing tables.

8. An engineer migrates from a more traditional OSPFv2 configuration that uses network commands in OSPF configuration mode to instead use OSPFv2 interface configuration. Which of the following commands configures the area number assigned to an interface in this new configuration?

A. The **area** command in interface configuration mode
B. The **ip ospf** command in interface configuration mode
C. The **router ospf** command in interface configuration mode
D. The **network** command in interface configuration mode

9. Which of the following configuration settings on a router does not influence which IPv4 route a router chooses to add to its IPv4 routing table when using OSPFv2?

A. auto-cost reference-bandwidth
B. delay
C. bandwidth
D. ip ospf cost

10. OSPF interface configuration uses the `ip ospf process-id area area-number` configuration command. In which modes do you configure the following settings when using this command?

A. The router ID is configured explicitly in router mode.
B. The router ID is configured explicitly in interface mode.
C. An interface's area number is configured in router mode.
D. An interface's area number is configured in interface mode.

11. Router R15 has been a working part of a network that uses OSPFv2. An engineer then issues the `shutdown` command in OSPF configuration mode on R15. Which of the following occurs?

A. R15 empties its IP routing table of all OSPF routes but keeps its LSDB intact.
B. R15 empties its LSDB but keeps OSPF neighbor relationships active.
C. R15 keeps OSPF neighbors open but does not accept new OSPF neighbors.
D. R15 keeps all OSPF configuration but ceases all OSPF activities (routes, LSDB, neighbors).

12. An engineer connects routers R11 and R12 to the same Ethernet LAN and configures them to use OSPFv2. Which answers describe a combination of settings that would prevent the two routers from becoming OSPF neighbors? (Choose two answers.)

A. R11's interface uses area 11 while R12's interface uses area 12.
B. R11's OSPF process uses process ID 11 while R12 uses process ID 12.
C. R11's interface uses OSPF priority 11 while R12's uses OSPF priority 12.
D. R11's interface uses an OSPF Hello timer value of 11 while R12's uses 12.

13. What is the first step of the STP convergence process?
A. Block nondesignated ports
B. Calculate designated ports
C. Elect a root bridge
D. Calculate root ports

14. What command sets the priority to 4096 for VLAN 10?
A. spanning-tree vlan 10 priority 4096
B. spanning-tree priority 4096 vlan 10
C. spanning-tree 4096 10
D. spanning-tree priority 4096 vlan-id 10

15. What command configures a port to dynamically error disable should a BPDU be received?
A. spanning-tree bpdufilter enable
B. spanning-tree switchguard enable
C. spanning-tree bpduguard
D. spanning-tree bpduguard enable

16. What command creates a LACP EtherChannel with a local ID of 10?
A. channel-group 10 mode active
B. channel-group 10 mode desirable
C. channel-group 10 mode on
D. channel-group 10 mode enable

17. What command would verify all of your local EtherChannels?
A. show portchannels all
B. show etherchannel summary
C. show portchannel details
D. show portchannel interfaces

18. What statement about OSPFv3 is true?
A. The dead timers do not need to match between neighbors.
B. The hello timers do not need to match between neighbors.
C. The area ID must match between neighbors.
D. The **network** command must be used.

19. Which of the following is true regarding link state routing protocols? (Select two.)
A. Routers share routing table information with all other routers on the network
B. Routers share routing table information with neighboring routers
C. Updates are only sent every 60 seconds
D. Maintains multiple tables in memory — one for neighboring routers, one to store the entire topology, and final table is the routing table.
E. Sends entire routing table as an update

20. **Examine the topology shown in the figure. If OSPF, EIGRP, and RIPv2 were all enabled on each interface on each router, which routing protocol would be used by R4 to determine the best route to 10.77.67.0/24?**

Area 45 — Area 0 — Area 67

10.77.X.0/24
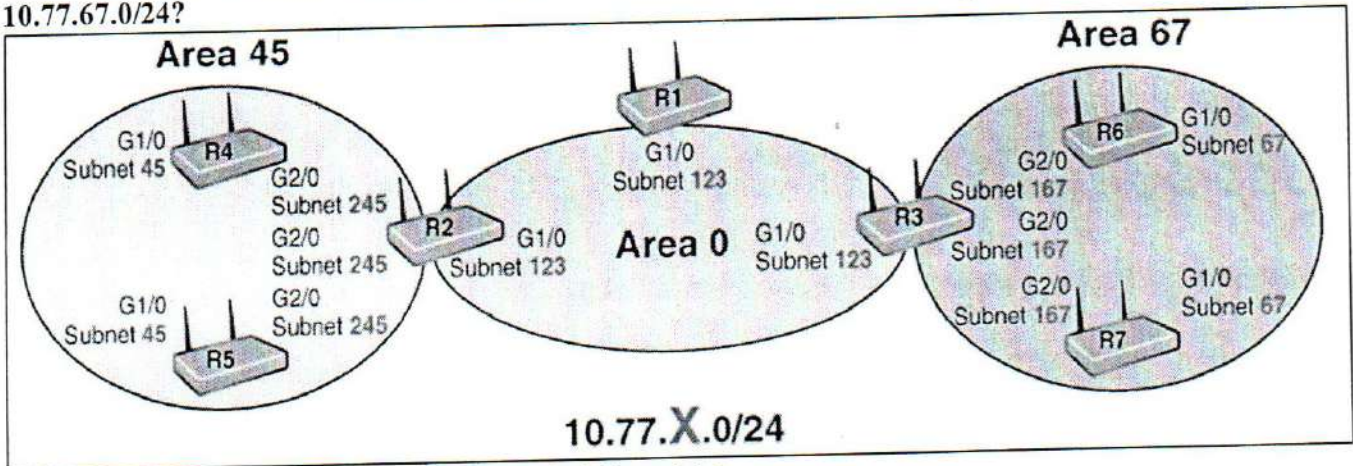
A. EIGRP because its metric considers bandwidth and delay
B. OSPF because its cost is derived from bandwidth and delay
C. OSPF because it is an advanced distance vector routing protocol
D. EIGRP because of administrative distance

21. **Dynamic routing protocols run at what layer of the OSI model?**
A. Layer 1
B. Layer 2
C. Layer 3
D. Layer 4

22. **Which of the following is true of distance vector routing protocols? (Select two.)**
A. Routers share routing table with all other routers on the network
B. Routers share routing table with neighboring routers
C. Updates are only sent every 60 seconds
D. Maintains multiple tables in memory — one for neighboring routers, one to store the entire topology, and final table is the routing table.
E. Sends entire routing table as an update

23. **When configuring OSPF on your router, you have specified an interface to be part of area 0. What the area known as?**
A. Backbone
B. Branch network
C. Exterior network
D. Internet

24. **Which of the following commands enables an OSPFv3 process?**
A. router ospf 5
B. ospf 5
C. ipv6 ospf 5
D. ipv6 router ospf 5

25. **Which layer of the OSI model does RSTP run at?**
A. Physical
B. Data Link
C. Network
D. Transport

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26. Which of the following are true regarding RSTP? (Select three.)
A. RSTP uses the same port roles as STP
B. Reduces converging time after a link failure
C. STP transitions quicker to a forwarding state than RSTP
D. Uses additional port roles over STP
E. Transitions to a forwarding state faster than STP

27. You want to configure your router for OSPF and run it on interfaces that are on the 192.168.1.0 network. Which of the following commands would you use?
A. Use the following:
   router ospf 1
   network 192.168.1.0 0.0.0.255 area 0
B. Use the following:
   router ospf 1
   network 192.168.1.0 255.0.0.0 area 0
C. Use the following:
   router ospf
   network 192.168.1.0 0.0.0.255 area 0
). Use the following:
   router ospf 1
   network 192.168.1.0 255.255.255.255 area 0

28. Using the figure below, what do you need to do on switch SW2 in order to ensure it is the root bridge?

```
SW2#show spanning-tree vlan 1
VLAN0001
   Spanning tree enabled protocol ieee
   Root ID      Priority     4097
                Address      00E0.F72C.AEC0
                Cost         19
                Port         1(FastEthernet0/1)
                Hello Time   2 sec  Max Age 20 sec  Forward Delay 15 sec

   Bridge ID    Priority     32769  (priority 32768 sys-id-ext 1)
                Address      000D.BD54.01EE
                Hello Time   2 sec  Max Age 20 sec  Forward Delay 15 sec
                Aging Time   20

Interface          Role Sts Cost        Prio.Nbr Type
---------------    ---- --- ---------   -------- --------------------------
Fa0/1              Root FWD 19          128.1    P2p
Fa0/24             Altn BLK 19          128.24   P2p
```

A. Add an additional interface.
B. Increase the aging time.
C. Increase the priority above 4096.
D. Decrease the priority below 4096.

29. Which VTP mode allows the creation of VLANs but does not accept changes from other VTP systems and does forward VTP messages on to other devices?
A. Server mode
B. Client mode
C. Transparent mode
D. Parent mode

30. You have configured SW1 as a VTP server for the GlensWorld VTP domain and a password of P@ssw0rd. You use the following commands to configure SW2 as a VTP client, but are unsuccessful. What is the problem?

```
vtp domain glensworld
vtp password P@ssw0rd
vtp mode client
```

A. The password needs changing.
B. The VTP mode should be set to transparent.
C. The VTP domain should be unique.
D. The VTP domain name is case sensitive.

31. You wish to configure an Etherchannel link made up of two Fast Ethernet trunk ports without any negotiations. What command would you use when configuring the interfaces?
A. channel-group 1 mode active
B. channel-group 1 mode passive
C. channel-group 1 mode off
). channel-group 1 mode on

32. Which of the following is true of classful routing protocols?
A. They send subnet mask info with the routing update.
B. They use wildcard masks.
C. They use the route with the highest cost pathway.
D. They do not send the subnet mask info with the routing update.

33. Which of the following is true of OSPF? (Select two.)
A. Elects a DR
B. Is vendor-specific
C. Administrative distance of 90
D. Uses cost as its metric
E. Administrative distance of 110

34. Looking at the figure below, what does the /65 indicate in the third route of the routing table?

```
R1>show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

C    11.0.0.0/8 is directly connected, FastEthernet0/0
C    12.0.0.0/8 is directly connected, Serial0/3/0
O    13.0.0.0/8 [110/65] via 12.0.0.2, 00:42:33, Serial0/3/0
R1>
```
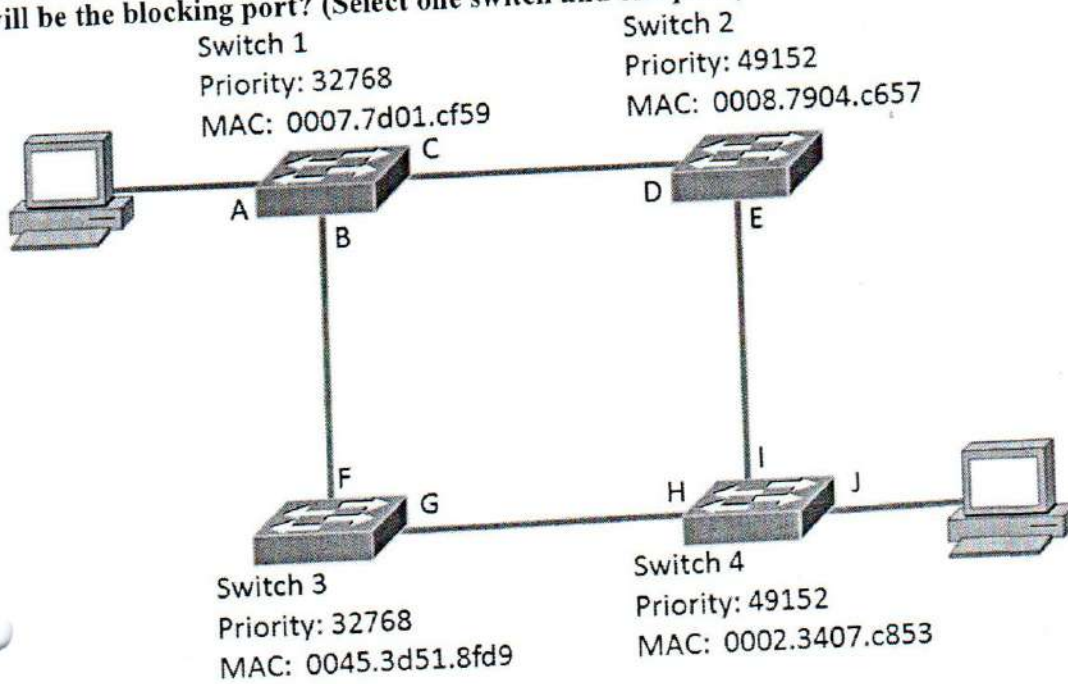
A. The administrative distance
B. The bandwidth
C. The hop count
D. The cost

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35. Given the network shown in the figure below, what switch will be the root bridge and what port will be the blocking port? (Select one switch and one port.)

Switch 1
Priority: 32768
MAC: 0007.7d01.cf59

Switch 2
Priority: 49152
MAC: 0008.7904.c657

Switch 3
Priority: 32768
MAC: 0045.3d51.8fd9

Switch 4
Priority: 49152
MAC: 0002.3407.c853

A. Switch 1 will be root bridge
B. Switch 2 will be root bridge
C. Switch 3 will be root bridge
D. Port B will be blocking
E. Port E will be blocking
F. Port I will be blocking

36. What is the goal of route summarization?
A. To support different size subnets
B. To share routing table information other routers
C. To prevent loops on the network
D. To reduce the size of the routing table

7. What is the purpose of a Designated Router (DR) with OSPF?
A. It acts as a backup if the BDR fails.
B. It assigns IP addresses to clients on the network.
C. It converts private addresses to public addresses.
D. All other routers exchange info with the DR to cut down on bandwidth usage.

38. Router R1, an internal router in OSPFv2 area 51, has an LSDB that includes some Type 1, some Type 2, and some Type 3 LSAs. Which of these types of LSAs could R1 not possibly have created inside area 51?
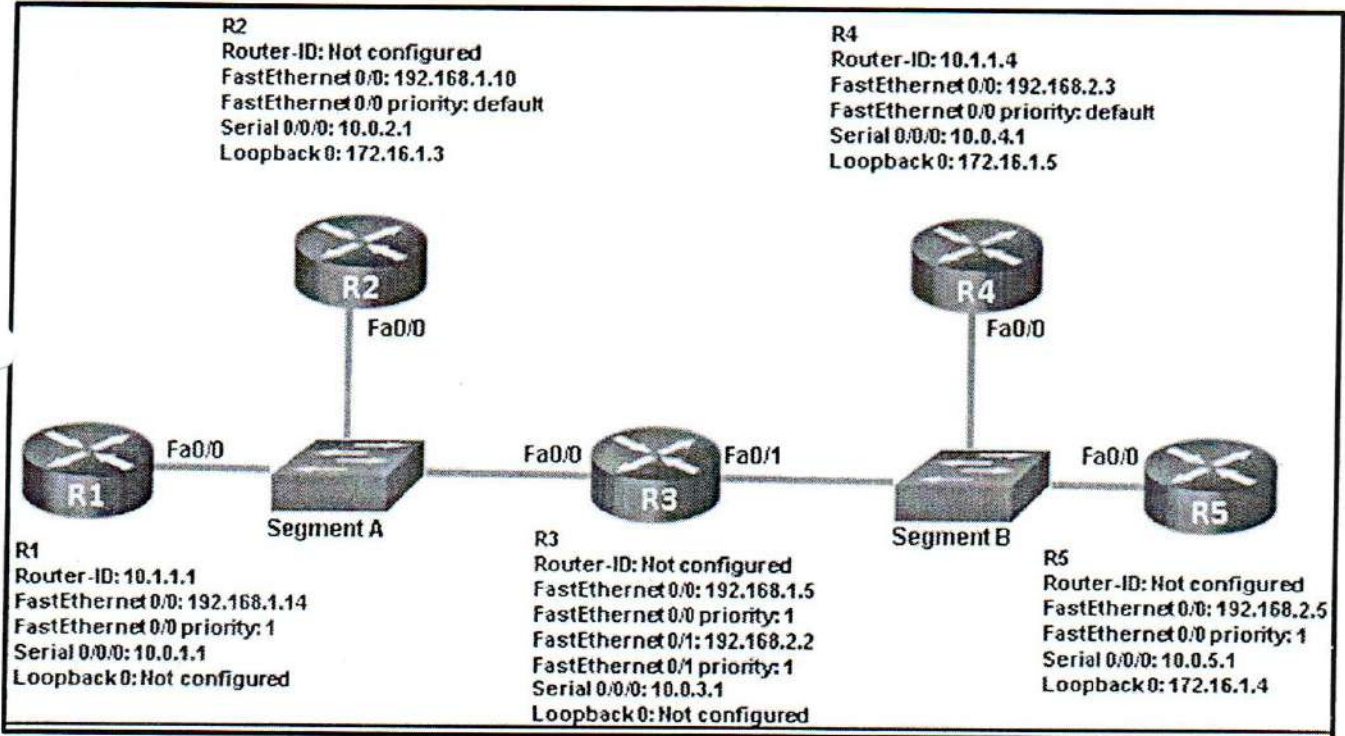A. Type 1
B. Type 2
C. Type 3
D. R1 would be allowed to create all three types.

39. What is the major difference between GLBP and either VRRP or HSRP?

A. VRRP supports faster failovers.
B. GLBP is designed as an Active/Passive solution.
C. GLBP performs Active/Active load balancing.
D. HSRP supports faster failovers.

40. Refer to the exhibit. For the given topology, what are three results of the OSPF DR and BDR elections? (Choose three.)

R2
Router-ID: Not configured
FastEthernet 0/0: 192.168.1.10
FastEthernet 0/0 priority: default
Serial 0/0/0: 10.0.2.1
Loopback 0: 172.16.1.3

R4
Router-ID: 10.1.1.4
FastEthernet 0/0: 192.168.2.3
FastEthernet 0/0 priority: default
Serial 0/0/0: 10.0.4.1
Loopback 0: 172.16.1.5

Fa0/0

Fa0/0

Fa0/0

Fa0/0

Fa0/1

Fa0/0

Segment A

Segment B

R1
Router-ID: 10.1.1.1
FastEthernet 0/0: 192.168.1.14
FastEthernet 0/0 priority: 1
Serial 0/0/0: 10.0.1.1
Loopback 0: Not configured

R3
Router-ID: Not configured
FastEthernet 0/0: 192.168.1.5
FastEthernet 0/0 priority: 1
FastEthernet 0/1: 192.168.2.2
FastEthernet 0/1 priority: 1
Serial 0/0/0: 10.0.3.1
Loopback 0: Not configured

R5
Router-ID: Not configured
FastEthernet 0/0: 192.168.2.5
FastEthernet 0/0 priority: 1
Serial 0/0/0: 10.0.5.1
Loopback 0: 172.16.1.4

A. R1 is BDR for segment A.
B. R2 is DR for segment A.
C. R3 is DR for segment A.
D. R4 is DR for segment B.
. R5 is BDR for segment B.
F. R3 is DR for segment B.