Answer Sheet A

01/10/2019

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

القســـــم: الاتصالات
لطلبة الفصل: السادس

أسئلة الامتحان النهائي لمادة : Scaling Networks
رمز المادة: CN303   التاريخ: 01/10/2019
الزمن: ساعتان
المجموعة : ....

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

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

Answer All questions | **A** | **Time allowed: TWO hours**

All questions carry equal weight

1. You are looking to implement a routing protocol with the following features:
   - Scalable
   - Support for VLSM
   - Vendor not compatibility
   - Low overhead

   Which protocol should you choose?
   A. OSPF
   B. RIP v1
   C. EIGRP
   D. IGRP

2. What are three metrics that are used by routing protocols to determine an optimal network path?
   A. hop count
   B. delay
   C. traffic
   D. distance
   E. loading balance
   F. bandwidth

3. What are possible port states for a switch port that is participating in Spanning Tree Protocol (STP)?
   A. Passing
   B. Blocking
   C. Learning
   D. Negotiating
   E. Participating
   F. Forwarding
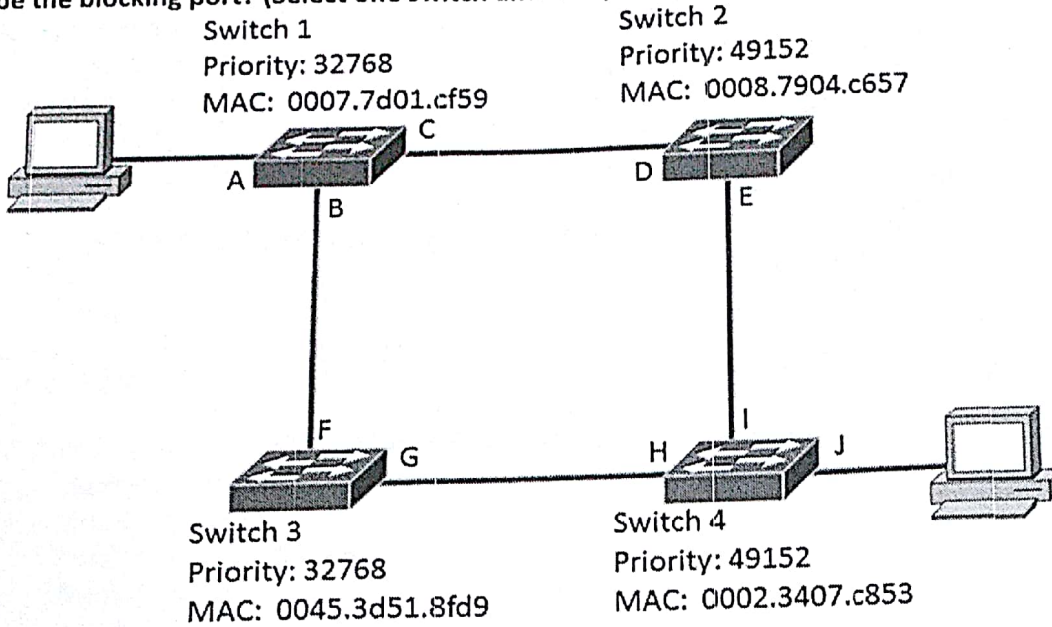
4. How frequently are hello messages sent with OSPF?
   A. Every 4 seconds
   B. Every 2 seconds
   C. Every 20 seconds
   D. Every 10 seconds

5. What are two reasons why two OSPF routers would not be able to create neighbor relationships? (Select two.)
   A. The router IDs are different.
   B. Hello and Dead Interval timers are not configured the same on both routers.
   C. The routers are in the same area.
   D. There is no loopback interface configured on each router.
   E. The routers are in different areas.

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

7. Hello messages are sent to which of the following addresses?
A. 255.255.255.255
B. 224.0.0.5
C. 242.0.0.5
D. 224.0.0.6
E. 255.0.0.0

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

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 domain name is case sensitive.
C. The VTP mode should be set to transparent.
D. The VTP domain should be unique.

10. Which of the following terms describes a spanning tree network where all switch ports are in either forwarding or blocking state?

A. Redundant
B. Fault tolerant
C. Treed
D. Converged
E. Full

11. PVST+ introduced which of the following port states?

A. Forwarding
B. Learning
C. Discarding
D. Listening

12. Looking at the following switch information, how can you configure SwitchC as the root bridge?

Name: SwitchA
Priority: 32768
MAC: 00-00-0c-00-b0-01
Name: SwitchB
Priority: 32768
MAC: 00-50-0d-10-00-00
Name: SwitchC
Priority: 32768
MAC: 0b-3f-27-00-93-3a

A. Increase the priority.
B. Lower the priority.
C. Change the MAC address.
D. Change the name.

13. Which of the following are true regarding RSTP?

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

14. 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 off
C. channel-group 1 mode on
D. channel-group 1 mode passive

15. You have configured three trunk ports in an Etherchannel group. What will happen when one port in the grouping fails?

A. The channel cost is decreased.
B. STP places the grouping in a blocking state.
C. The channel cost is increased
D. STP places the grouping in a forwarding state.

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16. Which of the follow commands was used to create the output in the figure below?

```
Name: Fa0/1
Switchport: Enabled
Administrative Mode: dynamic auto
Operational Mode: static access
Administrative Trunking Encapsulation: dot1q
Operational Trunking Encapsulation: native
Negotiation of Trunking: On
Access Mode VLAN: 1 (default)
Trunking Native Mode VLAN: 1 (default)
Voice VLAN: none
Administrative private-vlan host-association: none
Administrative private-vlan mapping: none
Administrative private-vlan trunk native VLAN: none
Administrative private-vlan trunk encapsulation: dot1q
Administrative private-vlan trunk normal VLANs: none
Administrative private-vlan trunk private VLANs: none
Operational private-vlan: none
Trunking VLANs Enabled: ALL
Pruning VLANs Enabled: 2-1001
Capture Mode Disabled
Capture VLANs Allowed: ALL
Protected: false
Appliance trust: none
```

A. show interface VLAN
B. show spanning-tree
C. show interface fastethernet 0/1 switchport
D. Show interface fastethernet 0/1

17. Which of the following is a benefit of triggered updates?

A. They are more accurate than scheduled updates.
B. They are supported by all routing protocols.
C. It decreases convergence time by sending out an update as soon as there is a change to the network topology.
D. It increases convergence time by sending out an update as soon as there is a change to the network topology.

18. Which of the following is true of link state routing protocols?

A. Choose the route with the lowest hop count
B. They use more resources as they store multiple tables in memory
C. Use a single table to share routing information
D. Use triggered updates to reduce the time to converge

19. Which of the following does a link state routing protocol use to build the topology database? (Select two.)

A. Hop count
B. Hello messages
C. Static routes
D. BPDU from other devices
E. LSA from other routers

20. You are troubleshooting communication on router R1. You use the show ip route command to display the routing table. Using the output of the figure below, how will information be sent from R1 to a system with the IP address of 15.0.0.25?

```
R1(config)#do 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
D    13.0.0.0/8 [90/2172416] via 12.0.0.2, 00:00:56, Serial0/3/0
C    14.0.0.0/8 is directly connected, Serial0/3/1
D    15.0.0.0/8 [90/2681856] via 12.0.0.2, 00:00:56, Serial0/3/0
                [90/2681856] via 14.0.0.2, 00:00:45, Serial0/3/1
```

A. Directly through FastEthernet 0/0
B. Always through 13.0.0.2
C. Always through 12.0.0.2
D. Through 12.0.0.2, and through 14.0.0.2
E. Always through 14.0.0.2

21. Which of the following causes a router to ignore updates from lower metric paths for a period of time?
A. Holddown timer
B. Poison reverse
C. Count to infinity
D. LSA
E. Split horizon

22. What are the three tables that a link state routing protocol typically uses? (Select three.)
A. Topology table
B. MAC table
C. Neighbor table
D. STP table
E. Routing table
F. LSDB table

23. The example shows an excerpt from the show ipv6 route ospf command on a router (R1). Which of the answers are correct about the interpretation of the meaning of the output of this command? (Choose two answers)

```
R1# show ipv6 route ospf
OI 2001:DB8:1:4::/64 [110/129]
   via FE80::FF:FE00:1, Serial0/0/1
```

A. 110 is the metric for the route.
B. S0/0/1 is an interface on R1.
C. FE80::FF:FE00:1 is a link-local address on R1.
D. OI means that the route is an inter-area OSPF route.
E. OI means that the route is an Intra-area OSPF route.

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24. Which of the following network commands, following the command router ospf 1, tells this router to start using OSPF on interfaces whose IP addresses are 10.1.1.1, 10.1.100.1, and 10.1.120.1?
A. network 10.0.0.0 255.0.0.0 area 0
B. network 10.0.0.0 0.255.255.255 area 0
C. network 10.0.0.1 0.0.0.255 area 0
D. network 10.0.0.1 0.0.255.255 area 0

25. 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.

26. A company has a 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 multi-area design?
A. Reduces the processing overhead on most routers.
B. Status changes to one link may not require SPF to run on all other routers.
C. Simpler planning and operations.
D. Allows for route summarization, reducing the size of IP routing tables.

27. Routers R1, R2, and R3 are internal routers in areas 1, 2, and 3, respectively. Router R4 is an ABR connected to the backbone area (0) and to areas 1, 2, and 3. Which of the following answers describes the configuration on router R4, which is different from the other three routers, that makes it an ABR?
A. The abr enable router subcommand.
B. The network router subcommands refer to a nonbackbone area.
C. The network router subcommands refer to multiple areas, including the backbone.
D. The router has an interface in area 0, whereas an OSPF neighbor's interface sits in a different area.

28. An engineer connects to router R1 and issues a show ip ospf neighbor command. The status of neighbor 2.2.2.2 lists Full/BDR. What does the BDR mean?
A. R1 is an Area Border Router.
B. R1 is a backup designated router.
C. Router 2.2.2.2 is an Area Border Router.
D. Router 2.2.2.2 is a backup designated router.

29. An engineer wants to set the OSPFv3 router ID for router R1. Which of the following answers could affect R1's choice of OSPFv3 router ID?
A. The ipv6 address command on interface Gigabit0/0
B. The ip address command on interface Serial0/0/1
C. The ospf router-id command in OSPFv3 configuration mode
D. The ipv6 address command on interface loopback2

30. R1 and R2 are routers that connect to the same VLAN. Which of the answers lists an item that can prevent the two routers from becoming OSPFv3 neighbors? (Choose three answers.)
A. Mismatched Hello timers
B. Mismatched process IDs
C. IPv6 addresses in different subnets
D. Equal router IDs
E. One passive router interface (used on this link)

31. An enterprise uses a dual-stack model of deployment for IPv4 and IPv6, using OSPF as the routing protocol for both. Router R1 has IPv4 and IPv6 addresses on its G0/0 and S0/0/0 interfaces only, with OSPFv2 and OSPFv3 enabled on both interfaces for area 0 and the router ID explicitly set for both protocols. Comparing the OSPFv2 and OSPFv3 configuration, which of the following statements is true?
   A. The OSPFv3 configuration, but not OSPFv2, uses the router-id router-id router subcommand.
   B. Both protocols use the router-id router-id router subcommand.
   C. Both protocols use the network network-number wildcard area area_id router subcommand.
   D. The both protocols use the ipv6 ospf process_id area area_id interface subcommand.

32. Router R1 has been configured as a dual-stack IPv4/IPv6 router, using interfaces S0/0/0, S0/0/1, and GigabitEthernet0/1. As a new engineer hired at the company, you do not know whether any of the interfaces are passive. Which of the following commands lets you find whether G0/1 is passive, either by the command listing that fact or by that command leaving passive interfaces out of its list of interfaces?
   A. show ipv6 ospf interface brief
   B. show ipv6 protocols
   C. show ipv6 ospf interface G0/1
   D. show ipv6 ospf interface passive

33. Which two statements about IPv6 and routing protocols are true? (Choose two.)
   A. Link-local addresses are used to form routing adjacencies.
   B. OSPFv3 was developed to support IPv6 routing.
   C. EIGRP, OSPF, and BGP are the only routing protocols that support IPv6.
   D. Loopback addresses are used to form routing adjacencies.
   E. EIGRPv3 was developed to support IPv6 routing.

34. Which model and which two characteristics would be more likely to be considered in purchasing an access layer switch, as compared to buying switches that operate at the other layers of the Cisco hierarchical design model? (Choose three.)
   A. Catalyst 2950
   B. Catalyst 4500X
   C. number of ports
   D. PoE
   E. EtherChannel
   F. RSTP

35. When does an OSPF router become an ASBR?

   A. when the router has interfaces in different areas
   B. when the router is configured as an ABR by the network administrator
   C. when the router has the highest router ID
   D. when the router has all of its interfaces in the same area.
   E. when the router has an OSPF priority of 0
   F. when the router has at least one interface attached to an external non-OSPF network.

36. What are two requirements to be able to configure an EtherChannel between two switches? (Choose two.)

   A. The interfaces that are involved need to be contiguous on the switch.
   B. All the interfaces need to work at the same speed.
   C. All the interfaces need to be working in the same duplex mode.
   D. All interfaces need to be assigned to different VLANs.
   E. Different allowed ranges of VLANs must exist on each end.

37. The network administrator wants to configure a switch to pass VLAN update information to other switches in the domain but not update its own local VLAN database. Which two steps should the administrator perform to achieve this? (Choose two.)

A. Reset the VTP counters.
B. Configure VTP version 1 on the switch.
C. Configure the VTP mode of the switch to transparent.
D. Verify that the switch has a higher configuration revision number.
E. Configure the switch with the same VTP domain name as other switches in the network.

38. Refer to the exhibit. The Layer 2 switching design that is shown has been implemented in a campus environment that is using Spanning Tree Protocol. All inter-switch links that are shown are trunks. Whenever an inter-switch link fails, the network takes nearly a minute to completely converge. How can the convergence time be reduced?
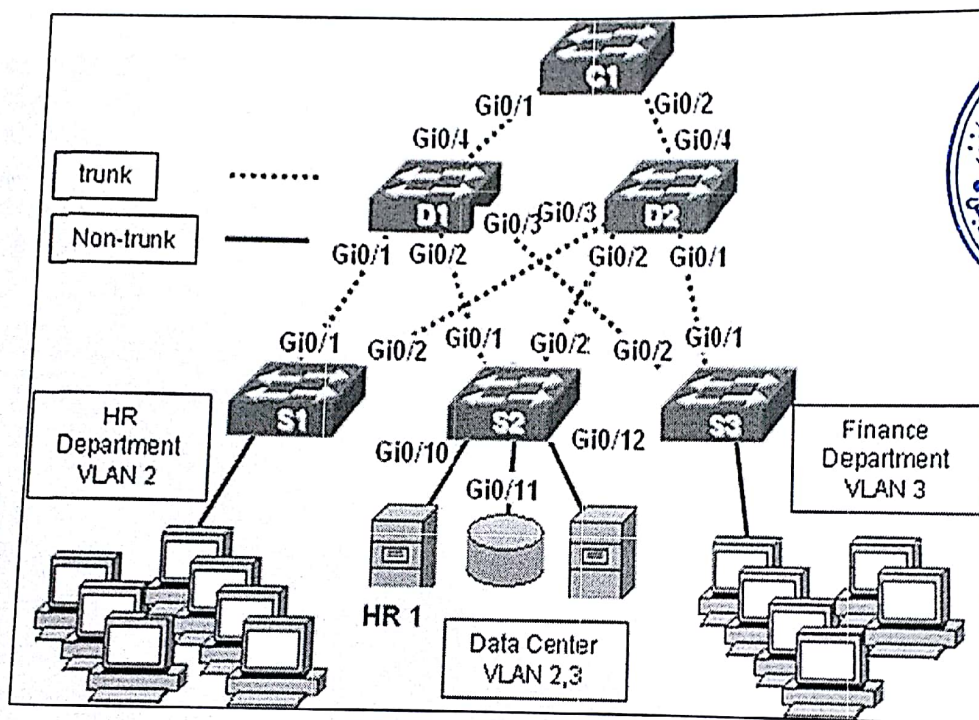

A. Increase the capacity of the distribution and core trunk links to 10 Gb/s.
B. Add a trunk link that directly connects D1 and D2.
C. Use Layer 3 switching on the core switch.
D. Implement Rapid Spanning Tree Protocol.

39. Which three statements are correct concerning the default configuration of a new switch? (Choose three.)

A. It is configured in VTP server mode.
B. STP is automatically enabled.
C. The first VTY line is automatically configured to allow remote connections.
D. VLAN1 is configured with a management IP address.
E. All switch ports are assigned to VLAN1.
F. The enable password is configured as cisco.

40. Using the following illustration, which of the following are true? (Choose all that apply.
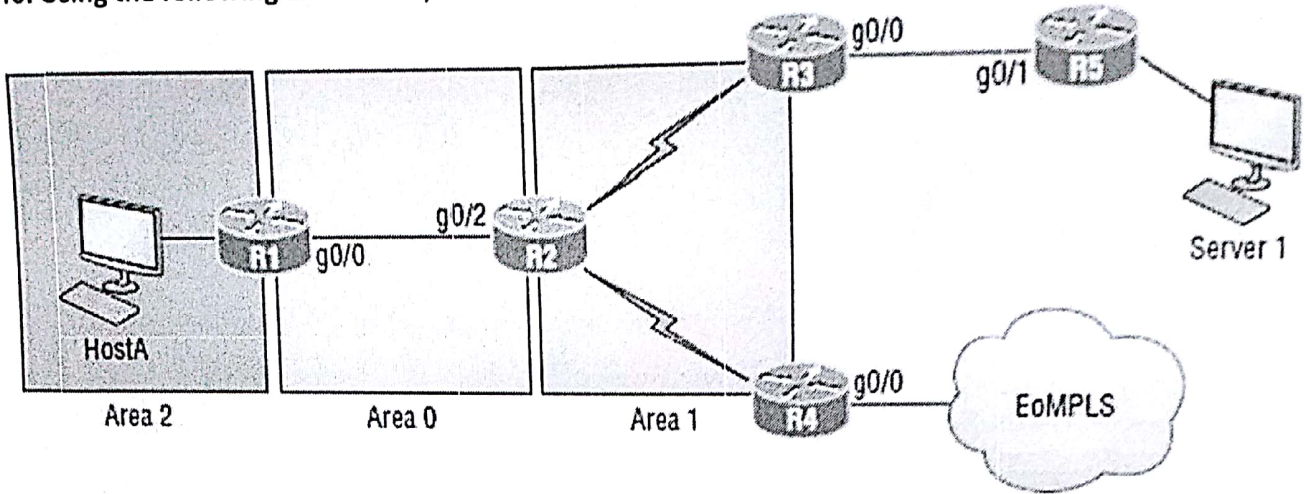
A. R1 is an internal router.
B. R3 would see the networks connected to the R1 router as an inter-area route.
C. R2 is an ASBR.
D. R3 and R4 would receive information from R2 about the backbone area, and the same LSA information would be in both LSDBs.
E. R4 is an ABR.