Chapter 9: Quiz – Advanced OSPF (Answers) CCNPv8 ENCOR

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13. What are two effects of using multiple OSPF areas? (Choose two.)

- prevention of a flood of queries
- **reduction in the size of the LSDB**
- reduction in the size of the neighbor table
- **limits on the propagation of type 1 and 2 LSAs**
- decrease in the number of DR and BDR elections

Explanation: AS OSPF areas grow in size, the size of the LSDB grows and the number of type 1 and type 2 LSAs increases. Breaking an OSPF domain into multiple areas reduces the size of the LSDB and the number type 1 and 2 LSAs in each area.

14. Where can interarea route summarization be performed in an OSPF network?

- ASBR
- DR
- **ABR**
- any router

15. Refer to the exhibit. What is indicated by the O IA in the router output?

```
R3# show ip route ospf

<output omitted>

Gateway of last resort is not set

      10.0.0.0/8 is variably subnetted, 4 subnets, 2 masks
O IA     10.1.1.0/24 [110/648] via 192.168.10.1, 00:07:52, Serial0/0/0
O IA     10.1.2.0/24 [110/648] via 192.168.10.1, 00:07:52, Serial0/0/0
O IA  192.168.1.0/24 [110/648] via 192.168.10.6, 00:07:52, Serial0/0/1
O IA  192.168.2.0/24 [110/648] via 192.168.10.6, 00:07:52, Serial0/0/1
R3#
```

- The route was manually configured.
- The route was learned from within the area.
- The route was learned from outside the internetwork.
- **The route was learned from another area.**

Explanation: The O IA in the routing table indicates that those routes were learned from other areas. The O indicates OSPF, and the IA indicates interarea routes that were received as summary LSAs.

16. Which statement describes the creation of LSAs by ABRs in the discontinuous network situation?

- **Type 3 LSAs received from Area 0 are created for nonbackbone areas.**
- Type 1 LSAs received from nonbackbone areas are forwarded into the backbone area.
- Type 3 LSAs received from a nonbackbone area are created in other nonbackbone areas.
- Type 1 LSAs received by the ABR are forwarded into other nonbackbone areas.

Explanation: There are three fundamental rules that ABRs use for creating type 3 LSAs:

- Type 1 LSAs received from an area create type 3 LSAs into the backbone area and nonbackbone areas.
- Type 3 LSAs received from Area 0 are created for the nonbackbone area.
- Type 3 LSAs received from a nonbackbone area only insert into the LSDB for the source area. ABRs do not create a type 3 LSA for the other areas (including a segmented Area 0).

17. What is the default maximum number of equal-cost paths supported by OSPF?

- 2
- **4**
- 8
- 16

Explanation: By default OSPF supports up to four equal cost paths. The number of equal cost paths can be modified with the maximum-paths command.

18. When does an OSPF router become an ABR?

- **when the router has interfaces in different areas**
- when the router is configured as an ABR by the network administrator
- when the router has the highest router ID
- when the router has an OSPF priority of 0

Explanation: When a router has interfaces connected to different areas, it becomes an ABR without requiring extra configuration. The router ID and priority values determine DR/BDR status.

19. Which method can be used to prevent type 3 LSAs on the backbone from being regenerated into a nonbackbone area?

- **distribute list**
- prefix list
- interarea summarization
- intra-area summarization

Explanation: A distribute list configured on an ABR is applied before the type 3 LSA regeneration process and it can prevent the type 3 LSA from being regenerated into a nonbackbone area.

20. Which two networks are part of the summary route 192.168.32.0/22? (Choose two.)

- 192.168.31.0/24
- **192.168.33.0/24**
- 192.168.37.0/24
- **192.168.35.0/24**
- 192.168.36.0/24
- 192.168.38.0/24

Explanation: The summary route 192.168.32.0/22 would include networks 192.168.32.0/24, 192.168.33.0/24, 192.168.34.0/24, and 192.168.35.0/24.

21. Which three LSA types build the SPF tree for intra-area and interarea routes? (Choose three).

- **type 1**
- **type 2**
- **type 3**
- type 4
- type 5
- type 7

Explanation: Type 1, 2, and 3 LSAs build the SPF tree. Type 1 LSAs are advertised by every OSPF router and advertise router links. Type 2 LSAs are advertised by DRs and identify all routes attached to a network segment. Type 3 LSAs are sent by ABRs and advertise network prefixes from nonoriginating areas.

22. What type of OSPF LSA is originated by ASBR routers to advertise external routes?

- type 1
- type 2

- type 3
- **type 5**

Explanation: OSPF has many different LSA types.

- type 1 – contains a list of directly connected interfaces
- type 2 – only exists for multiaccess networks and includes DR router ID
- type 3 – used by ABRs to advertise networks from other areas
- type 4 – generated by ABRs to identify an ASBR and provides a route to it
- type 5 – originated by ASBRs to advertise external routes

23. What period of time must elapse before an LSA is purged from the local LSBD if not updated with a new LSA?

- 900 seconds
- **1800 seconds**
- 3600 seconds
- 7200 seconds

Explanation: If not updated with a new LSA, LSAs in the local LSDB will age out at 3600 seconds and be purged from the LSDB.

24. What feature can be configured to filter routes as they are crossing an OSPF ABR?

- **prefix list**
- summarization
- distribute list
- route map

Explanation: A prefix list configured on an ABR can be used to filter routes as advertised into or out of an area.