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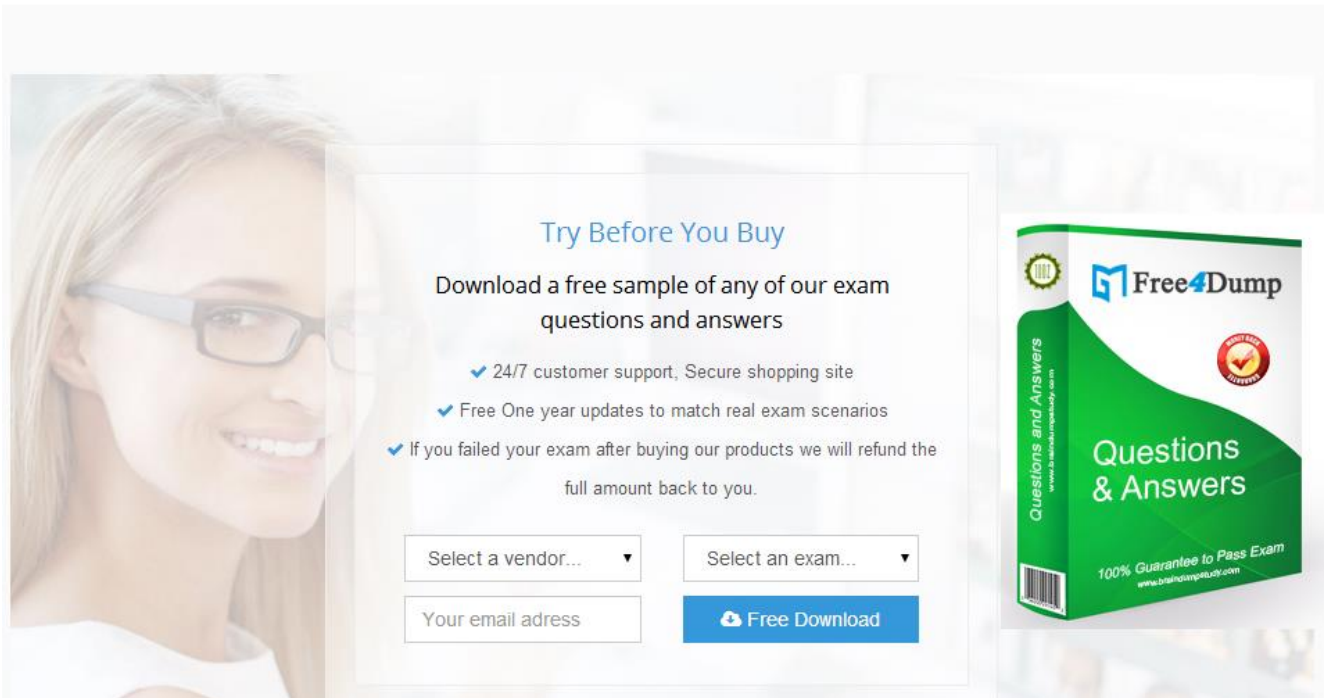
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Exam : **642-887**

Title : Implementing Cisco Service
Provider Next-Generation
Core Network Services

Vendor : Cisco

Version : DEMO

NO.1 An engineer is deploying CB-WRED across the entire core network to enforce the previously deployed CBWFQ and decides to change the WRED default to make it work with DSCP. Which policy-map command enables this new profile on regular Cisco IOS routers?

- A. random-detect
- B. random-detect dscp value
- C. random-detect precedence value
- D. random-detect dscp based

Answer: D

NO.2 Which three options are class maps able to match? (Choose three.)

- A. match mac-address
- B. match access-group
- C. match all
- D. match destination-port
- E. match protocol http url "*"cisco"
- F. match DSCP

Answer: B,E,F

NO.3 On the Cisco IOS XR, when using the match protocol command within a class-map to classify traffic, you noticed that the match protocol option on the Cisco IOS XR shows much fewer protocol options than on the Cisco IOS or IOS XE, like there is no option such as the match protocol yahoo-messenger command on the Cisco IOS XR. Why is this?

- A. because the Cisco IOS XR router does not have the correct software packages installed
- B. because NBAR is not supported on the Cisco IOS XR
- C. because flexible packet matching has not been enabled on the Cisco IOS XR router
- D. because when defining the class-map, the class-map type should be set to type inspect: class-map type inspect class-map-name command

Answer: B

NO.4 What is the purpose of the BGP table map QoS marking action in the QPPB implementation?

- A. to mark with QoS marking the prefixes that BGP peers receive
- B. to mark packets with QoS marking based on source
- C. to mark packets with QoS marking based on destination
- D. to mark with QoS marking the prefixes that only EBGP peers receive

Answer: D

NO.5 LDP session protection uses which one to maintain the LDP session between LDP neighbors?

- A. BFD
- B. backup-targeted LDP hellos
- C. LDP NSR
- D. LDP-IGP synchronization
- E. LDP NSF

Answer: B

NO.6 Which value can an LSR add to an MPLS ping to reduce the load of ping replies?

- A. latency
- B. MTU padding
- C. jitter
- D. delay

Answer: C

Explanation

Jitter

Jitter is used to reduce the load on the label switch router (LSR) where the ping is performed. By adding a jitter, the replying devices will space their reply time based on a random number between one and the jitter value.

Jitter value must be smaller than jitter type, length, value (TLV) received in an echo request or locally configured jitter value.

NO.7 The Cisco IOS and IOS XE qos pre-classify command allows which kind of packet classification on IP packets that are encapsulated with GRE and IPsec?

- A. allows for packets to be classified based on the packet payload before packet encryption
- B. allows for packets to be classified based on the ToS byte values after packet encryption
- C. allows for packets to be classified based on the packet payload after packet encryption
- D. allows for packets to be classified based on the packet header parameters other than the ToS byte values after packet encryption
- E. allows for packets to be classified based on the ToS byte values before packet encryption

Answer: E

Explanation

http://www.cisco.com/en/US/tech/tk543/tk545/technologies_tech_note09186a008017405e.shtml

The qos pre-classify command When packets are encapsulated by tunnel or encryption headers, QoS features are unable to examine the original packet headers and correctly classify the packets. Packets traveling across the same tunnel have the same tunnel headers, so the packets are treated identically if the physical interface is congested. With the introduction of the Quality of Service for Virtual Private Networks (VPNs) feature, packets can now be classified before tunneling and encryption occur.

In this example, tunnel0 is the tunnel name. The qos pre-classify command enables the QoS for VPNs feature on tunnel0:

```
Router(config)# interface tunnel0
Router(config-if)# qos pre-classify
```

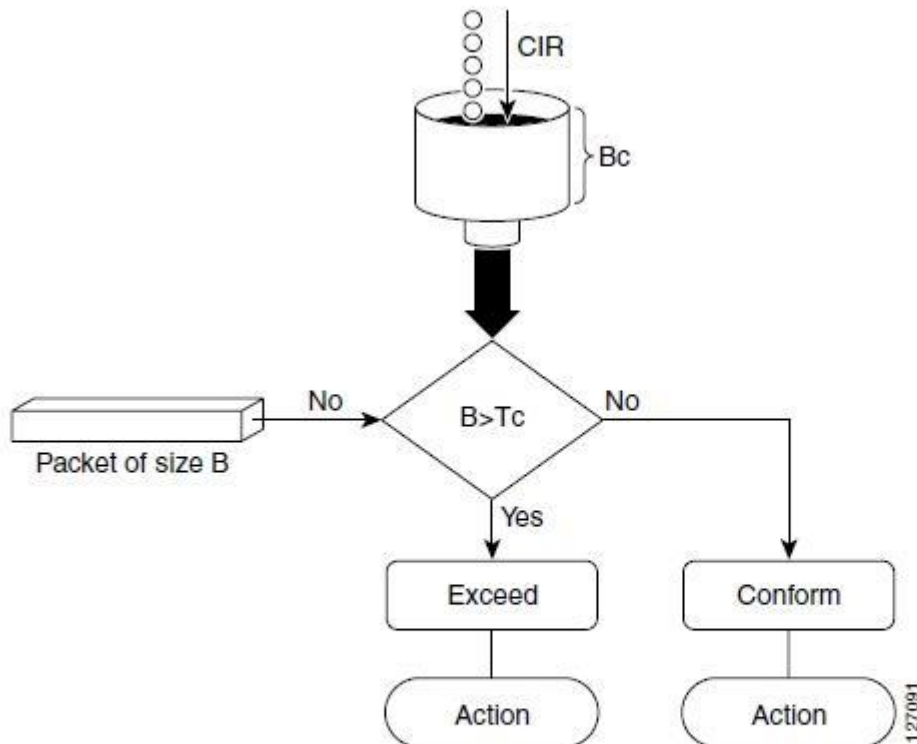
NO.8 Which three conditions can occur when metering traffic using a dual token bucket traffic policing QoS mechanism on Cisco routers? (Choose three.)

- A. pass
- B. burst
- C. matched
- D. exceed
- E. violate

F. conform

Answer: D,E,F

Figure 2 How a Traffic Policing Mechanism Regulates Traffic



The time interval between token updates (T_c) to the token bucket is updated at the CIR value each time a packet arrives at the traffic policer. The T_c token bucket can contain up to the B_c value. If a packet of size B is greater than the T_c token bucket, then the packet exceeds the CIR value and a configured action is performed. If a packet of size B is less than the T_c token bucket, then the packet conforms and a different configured action is performed.

NO.9 Scenario:

Instructions

Enter the proper CLI commands and analysis the outputs on the Cisco routers to answer the multiple-choice questions.

From the network topology diagram, click on the router icon to gain access to the console of the router.

No console or enable passwords are required.

There are four multiple-choice questions with this task. Be sure to answer all four questions before selecting the Next button.

Not all the CLI commands or commands options are supported or required for this simulation. All the devices in this simulation have been pre-configured and you are not required to enter in any configurations.

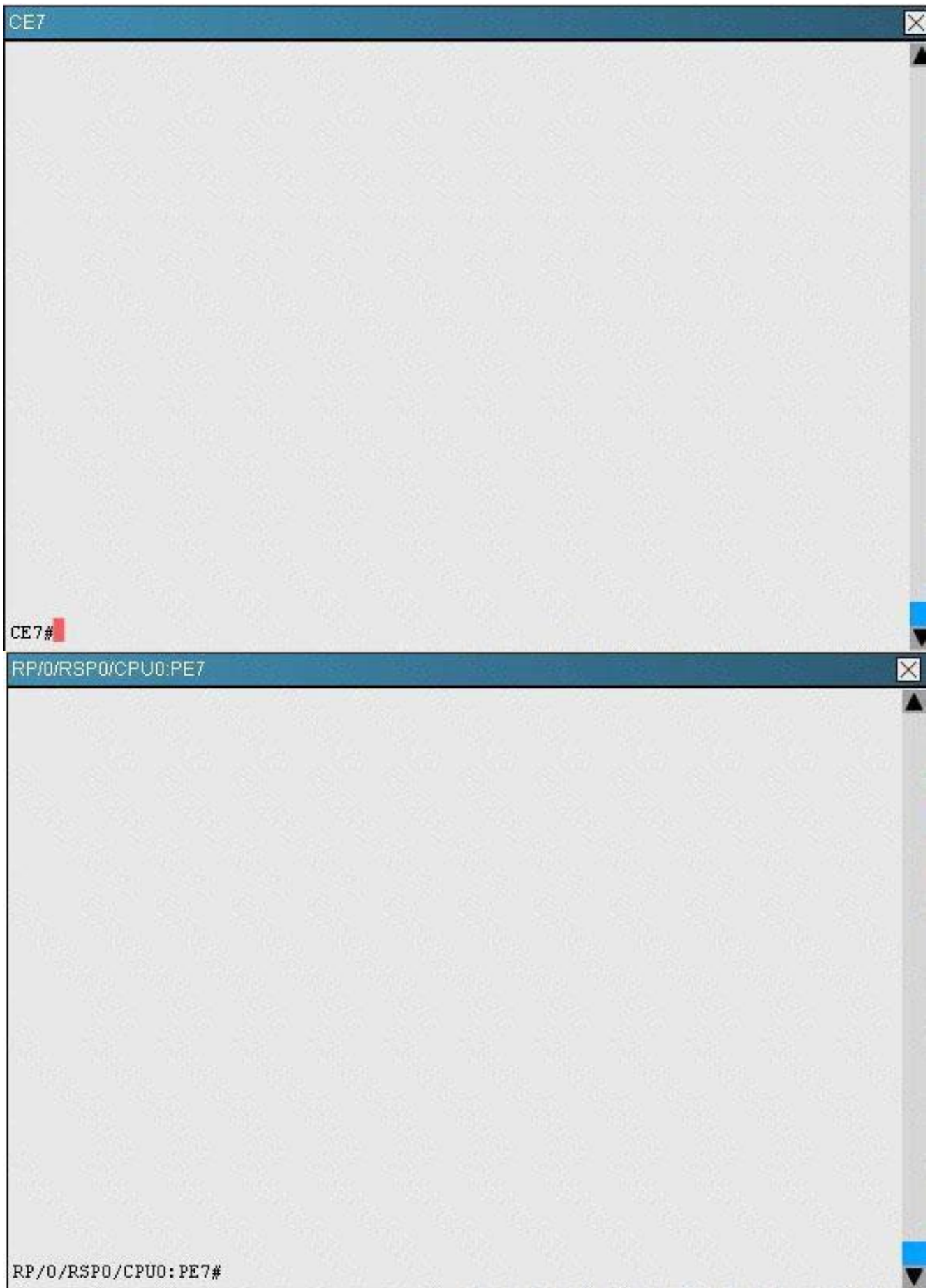
Scenario

Referring to the network topology diagram shown in the exhibit, use the proper CLI commands on the CE7 and PE7 routers and interpret the supported CLI commands outputs to answer the four multiple choice questions.

Topology



In this simulation, you will have access to the PE7 and CE7 consoles
Click on the PE7 and CE7 router icon to access the respective console
PE7 is an ASR9K and CE7 is an ISR-G2



On CE 7 router, which statement is correct regarding the "QOS-POLICY policy map configurations?

- A. The "QOS-POLICY is applied to the gi0/0 interface in the input direction
- B. Traffic matched by the "QOS-HTTP-1" class-map is shaped to an average rate of 2560000 128000bps
- C. Traffic matched by the "QOS1-HTTP-2" class-map will be queued in the low-latency-queue which has a maximum bandwidth guarantee of 64000
- D. Traffic matched by the "QOS-FTP-1" class-map can't use more than 256 Kbps under any condition

Answer: D

Explanation

show policy-map

show policy-map interface x/y

show running-config policy-map

NO.10 When using the tunnel mpls traffic-eng path-option 1 explicit name test command in Cisco MPLS TE tunnel configurations, the test explicit-path configuration will consist of a list of which values?

- A. resource class affinity
- B. IP address
- C. MPLS label
- D. tunnel endpoint

Answer: B

Explanation

tunnel mpls traffic-eng path-option

To configure a path option for a Multiprotocol Label Switching (MPLS) traffic engineering tunnel, use the tunnel mpls traffic-eng path-option command in interface configuration mode. To disable the specified path option, use the no form of this command.

```
tunnel mpls traffic-eng path-option number {dynamic | explicit {name path-name | path-number}}  
[lockdown] no tunnel mpls traffic-eng path-option number {dynamic | explicit {name path-name  
| path-number}} [lockdown]
```

Syntax Description

number = When multiple path options are configured, lower numbered options are preferred.

dynamic = Path of the LSP is dynamically calculated.

explicit = Path of the LSP is an IP explicit path.

name path-name = Path name of the IP explicit path that the tunnel uses with this option.

path-number = Path number of the IP explicit path that the tunnel uses with this option.

lockdown = (Optional) The LSP cannot be reoptimized.

Usage Guidelines

You can configure multiple path options for a single tunnel. For example, there can be several explicit path options and a dynamic option for one tunnel. Path setup preference is for lower (not higher) numbers, so option 1 is preferred.

Examples

The following example shows how to configure the tunnel to use a named IP explicit path:

```
Router(config-if)# tunnel mpls traffic-eng path-option 1 explicit name test
```

NO.11 Which four pieces of information are stored for each prefix in the LFIB? (Choose four.)

- A. incoming interface

- B. next-hop IP address
- C. outgoing interface
- D. Layer 2 header rewrite information
- E. outgoing label
- F. local label

Answer: B,C,E,F

Explanation

Forwarding Labeled Packets

LSR forwards the packet based on:

Top Label value of the received packet

Corresponding entry in LFIB (LABEL <=> INTERFACE)

#show mpls forwarding-table - will show:

local label

outgoing label

prefix (network)

outgoing interface

next-hop

```
Pomerol#show mpls forwarding-table
```

Local tag	Outgoing tag or VC	Prefix or Tunnel Id	Bytes tag switched	Outgoing interface	Next Hop
16	Pop tag	10.1.1.12/30	636	Se3/0	point2point
17	Pop tag	10.10.10.1/32	0	Se3/0	point2point
18	21	10.10.10.4/32	0	Se3/0	point2point
19	Pop tag	10.1.1.0/30	0	Se4/0	point2point
	Pop tag	10.1.1.0/30	0	Se3/0	point2point
20	Pop tag	10.10.10.6/32	612	Se2/0	point2point
21	Pop tag	10.1.1.16/30	0	Se3/0	point2point
22	16	10.10.10.5/32	0	Se3/0	point2point
23	Pop tag	10.10.10.2/32	0	Se4/0	point2point

LSR expects packet to come with "top" label being "Local" (from show mpls forwarding-table).

If Outgoing label is "Aggregate", then that means that this is a summary route and more specific lookup is performed.

If LSR cannot find label/interface mapping in LFIB, then it drops the packet.

There are several "RESERVED" labels numbered from 0 to 15:

0 - explicit NULL - is used to preserve QoS info through EXP bits. It copies 'ip prec' or DiffServ.

1 - Router alert label - forces LSR to software switch the packet.

3 - Implicit NULL - this label is used for "connected" or "summary" routes. This way LSR signals it s neighbors to execute "POP label" operation on "connected" routes. It is called PHP, Penultimate Hop Popping, and is used to make sure that LSR does not perform 2 lookups (label + ip).

14 - OEM alert label - is used for monitoring purpose.

In Cisco IOS, the default range is 16 through 100,000, but can be expanded by using "mpls label range" command.

NO.12 Which two network devices are trusted endpoints in a network? (Choose two.)

- A. PC
- B. video endpoint
- C. IP phone

D. wireless clients

Answer: B,C

NO.13 Which two statements are correct in describing ISP environments that are running IP/MPLS in the core network? (Choose two.)

- A. On the PE routers, each BGP route must use a unique label to reach the BGP next hop.
- B. The PE and P routers run LDP to learn the labels for reaching the BGP next-hop addresses.
- C. A full mesh of IBGP sessions are required between all of the PE and P routers to ensure proper packets forwarding.
- D. The BGP next hops point to the PE routers, and only the PE routers are required to run BGP.

Answer: B,D

NO.14 Given this configuration of an interface for MPLS traffic engineering on a Cisco IOS XE router:

```
interface POS1/1/0
mpls traffic-eng tunnels
ip rsvp bandwidth 5000
```

Which option lists the equivalent configurations required on a Cisco IOS XR router?

- A. mpls traffic-eng
interface POS1/1/0
- B. mpls traffic-eng
interface POS1/1/0
rsvp
interface POS1/1/0
bandwidth 5000
- C. interface POS1/1/0
mpls traffic-eng tunnels
ip rsvp bandwidth 5000
- D. mpls traffic-eng
interface POS1/1/1
bandwidth 5mb
- E. mpls traffic-eng
interface POS1/1/0
rsvp
interface POS1/1/0

Answer: B

NO.15 Which two values are class-selector DSCP values? (Choose two.)

- A. 000111
- B. 100000
- C. 111000
- D. 001001
- E. 000001

Answer: B,C

NO.16 When configuring LLQ (strict priority queue) on a traffic class using the Cisco IOS XR priority command on a Cisco ASR9K router, which additional QoS command is required for this traffic class?

- A. bandwidth
- B. shape
- C. random-detect
- D. police

Answer: D

Explanation

The Low Latency Queueing feature brings strict priority queueing to Class-Based Weighted Fair Queueing (CBWFQ).

NO.17 With unmanaged CE routers, at which point in the service provider network is the QoS trust boundary, and what is required at the trust boundary?

- A. between the customer network and the CE router ingress and applying the required egress QoS policy on the CE router
- B. between the PE and P router and trusting the QoS markings from the CE router and applying the required QoS mechanisms based on the customer QoS markings
- C. between the CE and PE router and mapping of the customer traffic classes into the service provider traffic classes at the PE router ingress
- D. between the PE and the P router and mapping of the customer traffic classes into the service provider traffic classes at the P router ingress
- E. between the CE and PE router and trusting the QoS markings from the CE router and applying the required QoS mechanisms based on the customer QoS markings

Answer: C

NO.18 Refer to the exhibit.

```
ip explicit-path name LSP1 enable
  next-address 10.1.1.1
```

```
interface Tunnel100
  ip unnumbered Loopback0
  tunnel destination 192.168.1.2
  tunnel mode mpls traffic-eng
  tunnel mpls traffic-eng bandwidth 65000
  tunnel mpls traffic-eng path-option 1 explicit name LSP1
```

Which result occurs from this configuration?

- A. If the explicit path becomes unavailable, the tunnel falls back to dynamic routing paths
- B. The tunnel comes up because of the explicit path configuration and disregards all CSPF calculations
- C. If the explicit path becomes unavailable, the tunnel fails
- D. The traffic through the tunnel is limited to 65,000 Kbps of bandwidth

Answer: A