

SULIT



BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK
KEMENTERIAN PENDIDIKAN TINGGI

JABATAN TEKNOLOGI MAKLUMAT & KOMUNIKASI

PEPERIKSAAN AKHIR
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DFN4043 : SWITCHING AND ROUTING ESSENTIALS

TARIKH : 02 APRIL 2018
MASA : 8.30 PAGI - 10.30 PAGI (2 JAM)

Kertas ini mengandungi **TIGA PULUH TIGA** (33) halaman bercetak.

Bahagian A: Objektif (30 soalan)

Bahagian B: Struktur (2 soalan)

Dokumen sokongan yang disertakan : Tiada

JANGAN BUKA KERTAS SOALANINI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT



SECTION A : 45 MARKS
BAHAGIAN A : 45 MARKAH

INSTRUCTION:

This section consists of THIRTY (30) objective questions. Mark your answers in the OMR form provided.

ARAHAN :

Bahagian ini mengandungi TIGA PULUH (30) soalan objektif. Tandakan jawapan anda dalam borang OMR yang disediakan.

CLO1
C1

1. Identify the prefix length notation for the subnet mask 255.255.255.192.

Kenalpasti notasi prefix bagi subnet mask 255.255.255.192.

- A. /25
- B. /26
- C. /27
- D. /28

CLO2
C2

2. Identify the shortest valid abbreviation for IPv6 address FE80:0000:0000:0100:0000:0000:0123.

Kenalpasti alamat IPv6 FE80:0000:0000:0100:0000:0000:0123 yang tersingkat.

- A. FE80::100::123
- B. FE8::1::123
- C. FE80::100:0:0:0:123
- D. FE80:0:0100::123

CLO2
C3

3. As a network engineer at NewTech Sdn Bhd company, you just finished migrating IPv4 to IPv6. Choose a **SUITABLE** transition method that allows an IPv4 only host to communicate with an IPv6 only host.

*Sebagai jurutera rangkaian di syarikat NewTech Sdn Bhd, anda baru sahaja memindahkan IPv4 kepada IPv6. Pilih cara perpindahan **PALING SESUAI** yang membenarkan host yang mempunyai IPv4 sahaja untuk berkomunikasi dengan host yang mempunyai IPv6 sahaja.*

- A. Dual Stack
- B. Translation
- C. Tunneling
- D. Encapsulation

CLO2
C3

4. A network administrator is redesigning an IP addressing scheme for Marketing Department. Calculate the **INVALID** IP address for network address 190.4.80.0, mask 255.255.248.0.

*Pentadbir rangkaian sedang merekabentuk semula skema pengalamanan IP bagi Bahagian Pemasaran. Kirakan alamat IP yang **TIDAK SAH** untuk alamat rangkaian 190.4.80.0, mask 255.255.248.0.*

- A. 190.4.80.7
- B. 190.4.85.212
- C. 190.4.87.65
- D. 190.4.89.6

CLO2
C3

5. A Class B network needs to be subnet so that it supports 100 subnets and 100 hosts/subnets. For this design, if multiple masks meet those design requirements, the engineer should choose the mask that maximizes the number of hosts per subnet. Choose of the following masks which meets the design criteria.

Rangkaian kelas B perlu dilakukan proses subnet supaya ia dapat menampung 100 subnet dan 100 host / subnet. Untuk rekabentuk ini, sekiranya banyak mask yang memenuhi keperluan rekabentuk, jurutera rangkaian perlu memilih mask yang mempunyai jumlah host per subnet yang paling maksima. Pilih antara mask berikut yang memenuhi kriteria rekabentuk.

- A. /26
- B. /27
- C. 255.255.252.0
- D. 255.255.255.0

CLO1
C2

6. A network administrator needs to keep the user ID, password, and private session contents when establishing remote CLI connectivity with a switch to manage it. Indicate the **MOST APPROPRIATE** access method to use.

*Pentadbir rangkaian perlu menyimpan ID pengguna, kata laluan, dan kandungan sesi peribadi apabila membuat sambungan CLI secara kawalan jauh dengan switch. Tunjukkan kaedah akses yang **PALING SESUAI** untuk digunakan.*

- A. SSH
- B. Console
- C. Telnet
- D. AUX

CLO2
C3

7. Refer to Figure A1. A network administrator is configuring access control to switch SW1. If the administrator uses Telnet to connect to the switch, identify the password to access user EXEC mode.

Rujuk kepada Rajah A1. Pentadbir rangkaian sedang mengkonfigurasi kawalan akses untuk menukar SW1. Jika pentadbir menggunakan Telnet untuk menyambung ke switch, kenal pasti kata laluan untuk mengakses mod EXEC pengguna.

```
Enter configuration commands, one per line. End with CNTL/Z.  
SW1(config)# enable password letmein  
SW1(config)# enable secret secretin  
SW1(config)# line console 0  
SW1(config-line)# password lineconin  
SW1(config-line)# login  
SW1(config-line)# exit  
SW1(config)# line vty 0 15  
SW1(config-line)# password linevtyin  
SW1(config-line)# login  
SW1(config-line)# end  
SW1#
```

Figure A1/ Rajah A1

- A. letmein
- B. secretin
- C. lineconin
- D. linevtyin

CLO2
C3

8. Ethernet is one of the most widely used in LAN technologies and operates in the data link layer and the physical layer. Choose two statements describing a fixed configuration of Ethernet switch.

Ethernet adalah salah satu yang paling banyak digunakan dalam teknologi LAN dan beroperasi dalam lapisan pautan data dan lapisan fizikal. Pilih dua pernyataan menerangkan konfigurasi tetap pada switch Ethernet.

- I. The switch cannot be configured with multiple VLANs.
Switch tidak boleh dikonfigurasi dengan berbilang VLAN.
 - II. An SVI cannot be configured on the switch.
SVI tidak boleh dikonfigurasi pada switch.
 - III. A fixed configuration switch may be stackable.
Switch konfigurasi tetap boleh dihimpun.
 - IV. The number of ports on the switch cannot be increased.
Bilangan port pada switch tidak dapat ditingkatkan.
-
- A. I & II
 - B. I & IV
 - C. II & III
 - D. III & IV

- CLO2
C3
9. After troubleshooting a router, the network administrator wants to save the router configuration so that it will be used automatically the next time that the router reboots. Identify the suitable command that should be issued.

Selepas mengatasi masalah router, pentadbir rangkaian mahu menyimpan konfigurasi router supaya ia akan digunakan secara automatik pada setiap kali router di reboot. Kenalpasti arahan yang sesuai yang perlu dihasilkan.

- A. copy running-config flash
- B. copy startup-config flash
- C. copy running-config startup-config
- D. copy startup-config running-config

- CLO2
C3
10. CSMA is usually implemented in conjunction with a method for resolving media contention. The two commonly used methods are CSMA/Collision Detection and CSMA/Collision Avoidance. Choose the correct statement that represents a drawback of the CSMA/Collision Detection access method.

CSMA biasanya dilaksanakan bersempena dengan kaedah untuk menyelesaikan pertikaian media. Kaedah yang biasa digunakan ialah CSMA/Collision Detection and CSMA/Collision Avoidance. Pilih pernyataan yang betul yang mewakili kelemahan kaedah akses CSMA/Collision Detection.

- A. Media access protocols slow down network performance
Protokol akses media memperlambangkan prestasi rangkaian
- B. It is more complex than non-deterministic protocols
Ia lebih kompleks daripada non-deterministic protokol
- C. Collisions can decrease network performance
Perlanggaran boleh mengurangkan prestasi rangkaian
- D. CSMA/CD LAN technologies are only available at slower speeds than other LAN technologies
Teknologi CSMA / CD LAN hanya tersedia pada kelajuan yang lebih perlahan berbanding teknologi LAN yang lain

CLO2

C3

11. During the process of forwarding traffic, interpret what will the router do immediately after matching the destination IP address to a network on a directly connected routing table entry.

Semasa proses menghantar trafik, tafsirkan apa yang akan dilakukan oleh router sebaik selepas memadankan alamat IP destinasi ke rangkaian pada kemasukan jadual penghalaan yang bersambung.

- A. Discard the traffic after consulting the route table
Membuang trafik selepas berunding dengan jadual laluan
- B. Look up the next-hop address for the packet
Lihat alamat next-hop seterusnya untuk paket itu
- C. Switch the packet to the directly connected interface
Tukar paket ke antara muka yang bersambung terus
- D. Analyze the destination IP address
Menganalisa alamat destinasi IP

CLO1
C1

12. Select the switch form factor that should be used when large port density, fault tolerance, and low price are important factors.

Pilih faktor bentuk switch yang harus digunakan apabila ketumpatan pelabuhan besar, toleransi kesalahan, dan harga rendah adalah faktor penting?

- A. Fixed-configuration switch
Switch Fixed-configuration
- B. Stackable switch
Switch Stackable
- C. Modular switch
Switch Modular
- D. Rackable 1U switch
Switch Rackable 1U

CLO1
C2

13. Identify the ADVANTAGE of the modular switches over fixed-configuration switches.

Kenal pasti KELEBIHAN suis modular ke atas suis konfigurasi tetap.

- A. requires fewer power outlets.
memerlukan bekalan kuasa yang kurang.
- B. lower cost per switch.
Kos rendah per suis.
- C. lower forwarding rates.
kadar penghantaran yang lebih rendah.
- D. availability of multiple ports for bandwidth aggregation.
ketersediaan pelbagai port untuk agregasi jalur lebar.

CLO1
C2

14. Port Fa0/11 on a switch is assigned to VLAN 30. Identify what will happen if command `no switchport access vLan 30` is entered on the Fa0/11 interface.

Port Fa0 / 11 diletakkan pada VLAN 30. Kenalpasti apa yang akan berlaku jika arahan `no switchport access vLan 30` dimasukkan pada antarmuka Fa0 / 11.

- A. Port Fa0/11 will be shut down
Port Fa0 / 11 akan ditutup
- B. An error message would be displayed
Mesej ralat akan dipaparkan
- C. Port Fa0/11 will be returned to VLAN 1
Port Fa0 / 11 akan dikembalikan kepada VLAN 1
- D. VLAN 30 will be deleted
VLAN 30 akan dipadamkan

CLO2
C1

15. Identify the effect of issuing a switchport access vlan 20 command on the Fa0/18 port of a switch that does not have this VLAN in the VLAN database.

Kenal pasti kesan mengeluarkan akses switchport vlan 20 pada port Fa0 / 18 bagi switch yang tidak mempunyai VLAN ini dalam pangkalan data VLAN.

- A. The command will have no effect on the switch.
Perintah ini tidak akan memberi kesan kepada switch
- B. VLAN 20 will be created automatically.
VLAN 20 akan direka secara automatik
- C. An error stating that VLAN 20 does not exist will be displayed and VLAN 20 is not created
Kesilapan yang menyatakan bahawa VLAN 20 tidak wujud akan dipaparkan dan VLAN 20 tidak dicipta
- D. Port Fa0/18 will be shut down
Port Fa0 / 18 akan ditutup

CLO2
C2

16. Classify the ADVANTAGE of using the cut-through switching method instead of the store-and-forward switching method.

Kenalpasti KELEBIHAN menggunakan kaedah penswitchan cut-through berbanding dengan kaedah penswitchan store-and-forward.

- A. Has a positive impact on bandwidth by dropping most of the invalid frames
Mempunyai kesan positif pada jalur lebar dengan menggugurkan kebanyakan bingkai yang tidak sah
- B. Makes a fast forwarding decision based on the source MAC address of the Frame
Membuat keputusan pemajuan cepat berdasarkan sumber alamat MAC bagi Bingkai
- C. Has a lower latency appropriate for high-performance computing applications
Mempunyai kependaman yang lebih rendah sesuai untuk aplikasi pengkomputeran prestasi tinggi
- D. Provides the flexibility to support any mix of Ethernet speeds
Menyediakan fleksibiliti untuk menyokong sebarang campuran kelajuan Ethernet

CLO2
C3

17. Refer to Figure A1. Choose the **CORRECT** statement to describe the process of a frame sent from PCA forwarded to PCC if the MAC address table on switch SW1 is empty.

*Rujuk kepada Rajah A1. Pilih pernyataan yang **BETUL** untuk menerangkan proses bingkai yang dihantar dari PCA yang diteruskan ke PCC jika jadual alamat MAC pada switch SW1 kosong.*

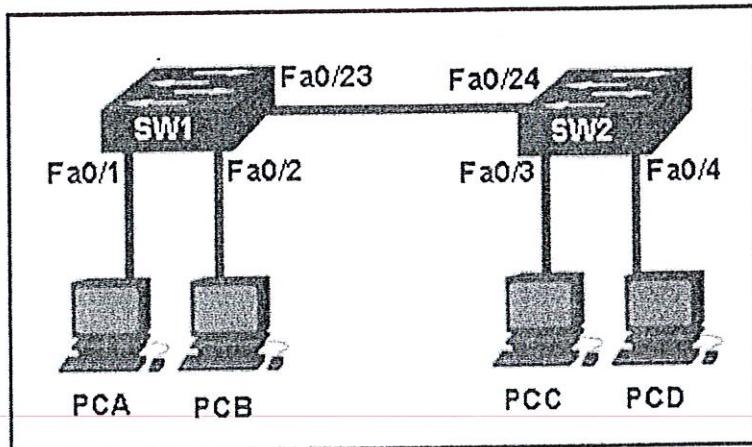


Figure A1 / Rajah A1

- A. SW1 floods the frame on all ports on the switch, excluding the interconnected port to switch SW2 and the port through which the frame entered the switch.
SW1 membanjiri bingkai pada semua port pada switch, tidak termasuk port yang tidak berhubung kepada SW2 dan port yang mana bingkai memasuki switch.
- B. SW1 floods the frame on all ports on SW1, excluding the port through which the frame entered the switch.
SW1 membanjiri bingkai pada semua port pada SW1, tidak termasuk port yang mana bingkai memasuki switch.
- C. SW1 forwards the frame directly to SW2. SW2 floods the frame to all ports connected to SW2, excluding the port through which the frame entered the switch.
SW1 meneruskan bingkai secara langsung ke SW2. SW2 membanjiri kerangka ke semua pelabuhan yang disambungkan ke SW2, tidak termasuk pelabuhan yang mana bingkai memasuki switch.
- D. SW1 drops the frame because it does not know the destination MAC address.
SW1 menggugurkan bingkai tersebut kerana ia tidak tahu alamat destinasi MAC.

- CLO2
C3 18. A VLAN is a logical partition of a Layer 2 network. Multiple partitions can be created, allowing for multiple VLANs to co-exist. As a network administrator, choose which type of VLANs are allowed across a trunk when the range of allowed VLANs is set to the default value

VLAN adalah bahagian logik Lapisan 2 rangkaian. Pemisahan berbilang boleh diwujudkan, membolehkan beberapa VLAN untuk wujud bersama. Sebagai pentadbir rangkaian, pilih jenis VLAN yang mana dibenarkan di seluruh trunk apabila julat VLAN yang dibenarkan ditetapkan kepada nilai asal.

- A. All VLANs will be allowed across the trunk
Semua VLAN akan dibenarkan merentasi trunk
- B. Only VLAN 1 will be allowed across the trunk
Hanya VLAN 1 yang dibenarkan merentasi trunk
- C. Only the native VLAN will be allowed across the trunk
Hanya VLAN asli yang dibenarkan merentasi trunk
- D. The switches will negotiate via VTP which VLANs to allow across the trunk.
Switch akan berunding melalui VTP yang membolehkan VLAN untuk merentasi trunk

CLO2
C3

19. Refer to Figure A2. PC-A and PC-B are both in VLAN 60. Choose a reason why PC-A is unable to communicate with PC-B.

Rujuk kepada Rajah A2. PC-A dan PC-B kedua-duanya dalam VLAN 60. Pilih sebab mengapa PC-A tidak dapat berkomunikasi dengan PC-B.

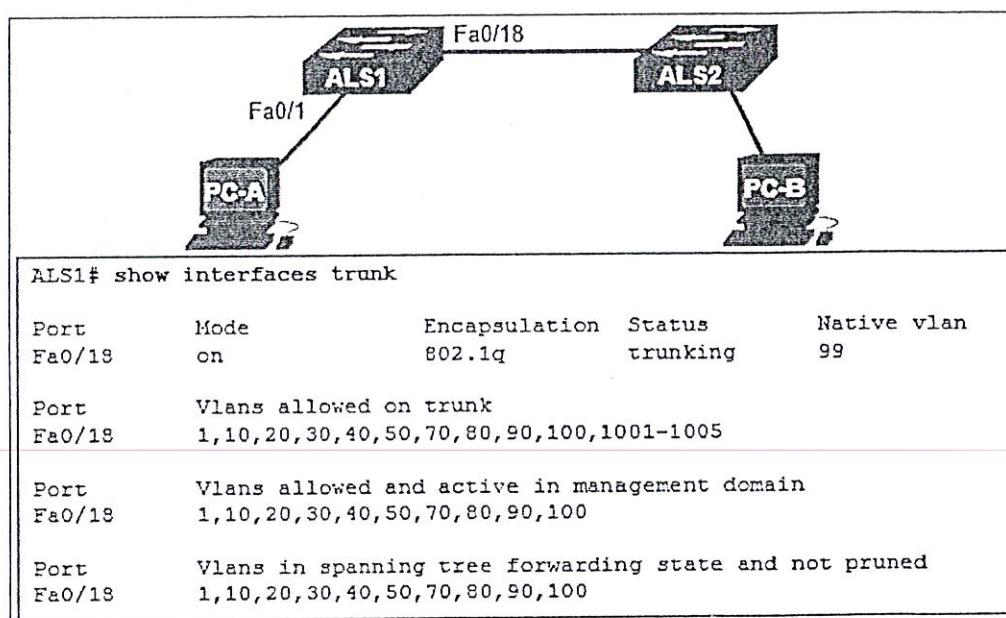


Figure A2/ Rajah A2

- A. The native VLAN should be VLAN 60
Native VLAN harus VLAN 60
- B. The native VLAN is being pruned from the link
Native VLAN sedang dipotong dari pautan
- C. The trunk has been configured with the switchport nonegotiate command
Trunk telah dikonfigurasikan dengan perintah tidak-berunding switchport
- D. The VLAN that is used by PC-A is not in the list of allowed VLANs on the trunk.
VLAN yang digunakan oleh PC-A tidak terdapat dalam senarai VLAN yang dibenarkan pada trunk

CLO2
C3

20. All access ports on a switch are configured with the administrative mode of dynamic auto. An attacker, connected to one of the ports, sends a malicious DTP frame. What is the intent of the attacker?

Semua akses port pada switch dikonfigurasi dengan mod pentadbiran auto dinamik. Penyerang, yang disambungkan ke salah satu port, menghantar bingkai DTP yang berniat jahat. Apakah niat penyerang?

- A. VLAN hopping attack
Serangan melompat VLAN
- B. DHCP spoofing attack
Serangan spoofing DHCP
- C. MAC flooding attack
Serangan membanjiri MAC
- D. ARP poisoning attack
Serangan racun ARP

CLO2
C3

21. A network administrator is investigating a failure on a trunk link between a Cisco switch and a switch from another vendor. After a few show commands, the administrator notices that the switches are not negotiating with a trunk. Interpret the probable cause for this issue.

Pentadbir rangkaian sedang menyiasat kegagalan pada sambungan trunk antara switch Cisco dan switch dari vendor lain. Selepas memasukkan beberapa arahan, pentadbir mendapati bahawa switch tidak dapat bekerjasama dengan trunk. Terangkan sebab yang mungkin untuk isu ini.

- A. Both switches are in trunk mode
Kedua-dua switch berada dalam mod trunk
- B. Both switches are in non-negotiate mode
Kedua-dua switch berada dalam mod bukan rundingan
- C. Switches from other vendors do not support DTP
Switch dari vendor lain tidak menyokong DTP
- D. DTP frames are flooding the entire network
Bingkai DTP membanjiri keseluruhan rangkaian

22. Select the command used to change router name.

CLO1
C1

Pilih arahan yang digunakan untuk menukar nama router.

- A. show
- B. hostname
- C. motd
- D. rename

CLO1
C2

23. Refer to Figure A3. Identify the command that is used to generate the following output.

Rujuk Rajah A3. Kenalpasti arahan yang digunakan untuk mendapatkan hasil berikut.

Codes: L - local, C - connected, S - static,
[output cut]
10.0.0.0/8 is variably subnetted, 6 subnets, 4 masks
C 10.0.0.0/8 is directly connected, FastEthernet0/3
L 10.0.0.1/32 is directly connected, FastEthernet0/3
C 10.10.0.0/16 is directly connected, FastEthernet0/2
L 10.10.0.1/32 is directly connected, FastEthernet0/2
C 10.10.10.0/24 is directly connected, FastEthernet0/1
L 10.10.10.1/32 is directly connected, FastEthernet0/1
S* 0.0.0.0/0 is directly connected, FastEthernet0/0

Figure A3 / Rajah A3

- A. show controller
- B. show interface
- C. show ip route
- D. show cdp neighbors

CLO1
C2

24. Refer to Figure A4. A network administrator needs to configure a static route on R1 so that traffic from both LANs reach the 2001:db8:1:4::/64 remote network. Select the correct command.

Rujuk kepada Rajah A4. Pentadbir rangkaian perlu konfigur ‘static route’ pada R1 supaya Tarik dari kedua dua LAN boleh berhubung dengan rangkaian jauh iaitu 2001:db8:1:4::/64. Pilih arahan yang betul.

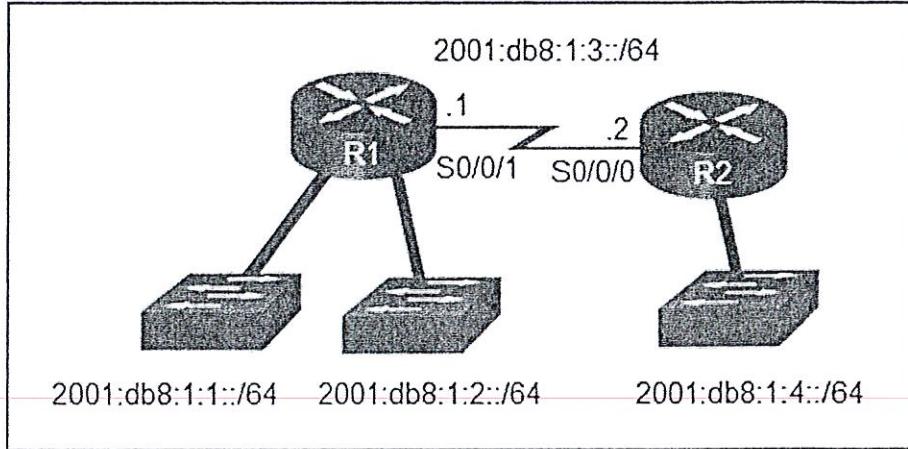


Figure A4 / Rajah A4

- A. ipv6 route ::/0 serial 0/0/0
- B. ipv6 route 2001:db8:1::/65 2001:db8:1:3::1
- C. ipv6 route 2001:db8:1:4::/64 2001:db8:1:3::1
- D. ipv6 route 2001:db8:1:4::/64 2001:db8:1:3::2

CLO1
C2

25. A network administrator configures the router with the ip route 172.16.1.0 255.255.255.0 172.16.2.2 command. Select how this route will appear in the routing table.

Pentadbir rangkaian konfigur router dengan arahan ip route 172.16.1.0 255.255.255.0 172.16.2.2. Pilih bagaimanakah laluan tersebut boleh muncul di dalam jadual routing.

- A. C 172.16.1.0 [1/0] via 172.16.2.2
- B. C 172.16.1.0 is directly connected, Serial 0/0
- C. S 172.16.1.0 [1/0] via 172.16.2.2
- D. S 172.16.1.0 is directly connected, Serial 0/0

CLO2
C3

26. A corporate router receives an IP packet with a source IP address of 192.168.214.20 and a destination address of 192.168.22.3. Referring to the output in Figure A5 from the Corporate router, choose what will the router do with this packet.

Router Corporate menerima paket IP dengan alamat IP sumber 192.168.214.20 dan alamat IP destinasi 192.168.22.2. Merujuk kepada hasil akhir Rajah A5 daripada router Corporate, pilih apakah yang akan dilakukan oleh router terhadap paket.

```
Corp# sh ip route
<output omitted>
R 192.168.215.0[120/2] via 192.168.20.2, 00:00:23, Serial0/0
R 192.168.115.0[120/1] via 192.168.20.2, 00:00:23, Serial0/0
R 192.168.30.0[120/1] via 192.168.20.2, 00:00:23, Serial0/0
C 192.168.20.0 is directly connected, Serial0/0
C 192.168.214.0[120/2] is directly connected, FastEthernet0/0
```

Figure A5 / Rajah A5

- A. The packet will be discarded.
Paket akan dimusnahkan.
- B. The packet will be routed out the S0/0 interface.
Packet akan diarahkan ke 'interface' S0/0.
- C. The router will broadcast for the destination.
Router akan membuat hebahan untuk destinasi.
- D. The packet will be routed out to Fa0/0 interface.
Paket akan diarahkan ke 'interface' Fa0/0

CLO2

C3

27. IP Routing is used for a set of protocols that determines the path that data follows in order to travel across multiple networks from its source to its destination. Choose **TWO (2) TRUE** statements regarding the command `ip route 172.16.4.0 255.255.255.0 192.168.4.2.`

Routing IP digunakan untuk menetapkan protokol yang menentukan laluan yang dikemukakan data untuk melintasi pelbagai rangkaian dari sumbernya ke destinasi. Pilih DUA (2) kenyataan yang BENAR berkenaan arahan ip route 172.16.4.0 255.255.255.0 192.168.4.2.

- I. The command is used to establish a static route.
Arahan ini digunakan untuk menubuhkan laluan statik.
 - II. The command is used to establish a stub network.
Arahan ini digunakan untuk menubuhkan stub rangkaian.
 - III. The default administrative distance is used.
Jarak pentadbiran default digunakan.
 - IV. The command is used to configure the default route.
Arahan ini digunakan untuk mengkonfigurasi laluan default.
 - V. The subnet mask for the source address is 255.255.255.0.
Subnet mask untuk alamat sumber ialah 255.255.255.0.
- A. I & II
 - B. I & III
 - C. III & IV
 - D. III & V

CLO2
C3

28. A network administrator configures the interface fa0/0 on the router R1 with the command IP address 172.16.1.254 255.255.255.0. However, when the administrator issues the command `show ip route`, the routing table does not show the directly connected network. Choose the possible cause of the problem

Pentadbir rangkaian konfigur interfaea fa0/0 pada router R1 dengan arahan IP address 172.16.1.254 255.255.255.0. Walaubagaimanapun apabila pentadbir melaksanakan arahan `show ip route`, jadual laluan tidak menunjukkan rangkaian yang berhubung terus. Pilih penyebab kepada masalah tersebut.

- A. The interface fa0/0 has not been activated.
Interface fa0/0 tidak diaktifkan.
- B. The configuration needs to be saved first
Konfigurasi perlu disimpan terlebih dahulu.
- C. No packets with a destination network of 172.16.1.0 have been sent to R1
Tiada paket dengan destinasi rangkaian ke 172.16.1.0 dihantar ke R1.
- D. The subnet mask is incorrect for the IPv4 address
Subnet mask bagi alamat IPv4 adalah salah.

CLO2
C3

29. Refer to Figure A6. The company NetScan uses static routing. Users on the R2 LAN have reported a problem with connectivity. Interpret the issue.

Rujuk kepada Rajah A6. Sebuah syarikat NetScan menggunakan 'static routing'. Pengguna rangkaian LAN pada R2 melaporkan masalah berkaitan perhubungan. Tafsirkan masalah tersebut.

<pre>R1#show ip route <output omitted> Gateway of last resort is 0.0.0.0 to network 0.0.0.0 10.0.0.0/8 is variably subnetted, 6 subnets, 7 masks C 10.0.30.0/24 is directly connected, GigabitEthernet0/0 L 10.0.30.254/32 is directly connected, GigabitEthernet0/0 C 10.0.40.0/24 is directly connected, GigabitEthernet0/1 L 10.0.40.254/32 is directly connected, GigabitEthernet0/1 C 10.0.50.0/24 is directly connected, Serial0/0/0 L 10.0.50.1/32 is directly connected, Serial0/0/0 192.31.7.0/24 is variably subnetted, 2 subnets, 3 masks C 192.31.7.96/30 is directly connected, Serial0/0/1 L 192.31.7.98/32 is directly connected, Serial0/0/1 S* 0.0.0.0/0 is directly connected, Serial0/0/1</pre>	<pre>R2#show ip route <output omitted> Gateway of last resort is 0.0.0.0 to network 0.0.0.0 10.0.0.0/8 is variably subnetted, 4 subnets, 5 masks C 10.0.50.0/24 is directly connected, Serial0/0/0 L 10.0.50.2/32 is directly connected, Serial0/0/0 C 10.0.60.0/24 is directly connected, GigabitEthernet0/0 L 10.0.60.1/32 is directly connected, GigabitEthernet0/0 S* 0.0.0.0/0 is directly connected, Serial0/0/0</pre>

Figure A6 / Rajah A6

- A. R2 needs a static route to R1 LANS
R2 memerlukan laluan statik ke LAN R1
- B. R2 needs a static route to the internet
R2 memerlukan laluan statik ke internet.
- C. R1 needs a static route to R2 LAN
R1 memerlukan laluan statik ke LAN R2
- D. R1 needs a default route to R2
R1 memerlukan laluan lalai ke R2

CLO2
C3

30. Inter VLAN communication is not occurring in a particular building of a school. Choose **TWO (2)** commands the network administrator could use to verify that inter-VLAN communication is working properly between a router and a Layer 2 switch when the router-on-a-stick design method is implemented.

Komunikasi Inter VLAN tidak berlaku pada sebahagian bangunan di sekolah. Pilih DUA (2) arahan yang boleh dilaksanakan oleh pentadbir rangkaian untuk mengesahkan bahawa komunikasi inter VLAN berfungsi dengan baik di antara router dan Switch Layer 2 sewaktu rekabentuk router-on-a-stick digunakan.

- I. From the router, issue the show ip route command.
Dari router, berikan arahan show ip route.
 - II. From the router, issue the show interface trunk command.
Dari router, berikan arahan show interface trunk.
 - III. From the switch, issue the show interface interface command.
Dari switch, berikan arahan show interface interface.
 - IV. From the switch, issue the show interface trunk command.
Dari switch, berikan arahan show interface trunk
-
- A. I & II
 - B. I & IV
 - C. II & III
 - D. III & IV

SECTION B : 55 MARKS**~~BAHAGIAN B : 55 MARKAH~~****INSTRUCTION:**

This section consists of TWO (2) structured questions. Answer ALL questions.

ARAHAN:

Bahagian ini mengandungi DUA (2) soalan berstruktur. Jawab semua soalan.

QUESTION 1***SOALAN 1***

- CLO1 (a) Define private addressing in network environment.

Nyatakan pengalamatan persendirian dalam persekitaran rangkaian.

[2 marks]
[2 markah]

- CLO2 (b) There are THREE (3) types of address within the address range of each IPv4 network.

By using a private IP from class C network, give an example of each type of address below.

Terdapat TIGA (3) jenis alamat di dalam julat setiap rangkaian IPv4. Dengan menggunakan alamat IP persendirian bagi kelas C, berikan contoh bagi setiap jenis alamat di bawah:

i. Network address. / *Alamat rangkaian.*

ii. Host address range. / *Julat alamat host.*

iii. Broadcast address. / *Alamat penyiaran.*

[4 marks]
[4 markah]

- CLO2 (c) A mask 255.255.255.128 is used with a Class B network. Calculate the subnet that could exist and amount of host per subnet respectively.

Mask 255.255.255.128 digunakan untuk rangkaian kelas B. Kira jumlah subnet yang boleh dibentuk dan jumlah host bagi setiap subnet.

[4 marks]
[4 markah]

- CLO1 (d) DHCP Snooping specifies which switch ports can respond to DHCP requests. Describe the process of DHCP Snooping.

DHCP Snooping menentukan pelabuhan switch yang boleh bertindak balas terhadap permintaan DHCP. Terangkan proses DHCP Snooping.

[3 marks]
[3 markah]

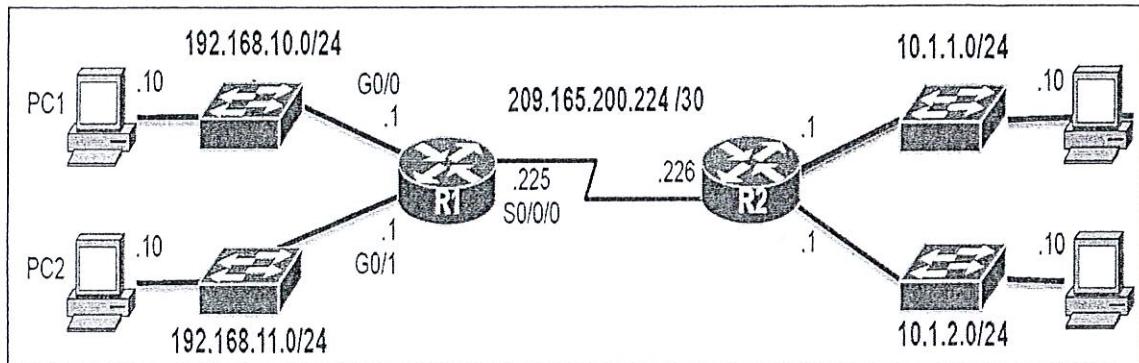
- CLO1 (e) List **FOUR (4)** characteristics of Store-and-Forward Switching.
Senaraikan EMPAT (4) ciri Store-and-Forward Switching.

[4 marks]
[4 markah]

CLO2

- (f) Based on Figure B1, identify the command on Router 1 (R1) to:

C2

Berdasarkan Rajah B1, kenalpasti arahan pada Router 1 (R1) untuk:Figure B1/ *Rajah B1*

- i. Set the IP address for interface gigabitethernet 0/0.

Tetapkan alamat IP untuk antaramuka gigabitethernet 0/0.[1 mark]
[1 markah]

- ii. Set a minimum of 10 characters to be used for all passwords.

Tetapkan sekurang-kurangnya 10 aksara digunakan untuk semua kata laluan.[1 mark]
[1 markah]

- iii. Assign cisco12345 as the privileged EXEC encrypted password.

Tetapkan cisco1235 sebagai privileged EXEC encrypted password.[1 mark]
[1 markah]

- iv. Set a banner that warns anyone accessing the device that unauthorized access is prohibited.

Tetapkan sepanduk yang memberi amaran kepada sesiapa sahaja yang mengakses peranti tanpa izin.[1 mark]
[1 markah]

QUESTION 2**SOALAN 2**CLO1
C2

- (a) As a network administrator, you have to configure Switch S1 to enable vlan 1 for the IP address 192.168.1.2. Identify the missing configuration from the Figure B2.

Sebagai pentadbir rangkaian, anda perlu mengkonfigurasi Switch S1 untuk membolehkan vlan1 pada alamat IP 192.168.1.2. Kenalpasti konfigurasi yang hilang dari Rajah B2.

```
S1(config)# interface vlan1
S1(config-if)# _____ A _____ 192.168.1.2
S1(config-if)# _____ B _____
```

Figure B2 / Rajah B2

[2 marks]
[2 markah]

CLO2
C2

- (b) Describe THREE (3) required steps for double-tagging VLAN hopping attack.

Terangkan TIGA (3) langkah-langkah yang diperlukan bagi double-tagging serangan VLAN hopping.

[3 marks]
[3 markah]

CLO2

- (c) Based on Figure B4 & Table B1, implement VLANs on S1.

C3

Berdasarkan Rajah B4 & Jadual B1, laksanakan VLAN pada Switch 1.

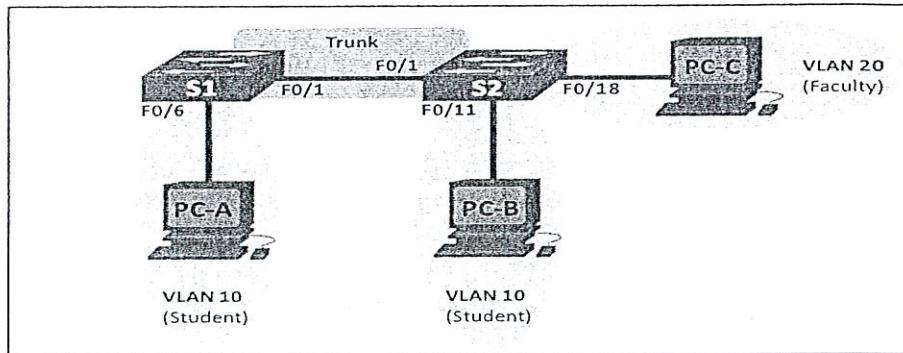


Figure B4 / Rajah B4

Table B1 / Jadual B1

Device	Interface	IP Address	Subnet Mask	Default Gateway
S1	VLAN 1	192.168.1.11	255.255.255.0	N/A
S2	VLAN 1	192.168.1.12	255.255.255.0	N/A
PC-A	NIC	192.168.10.3	255.255.255.0	192.168.10.1
PC-B	NIC	192.168.10.4	255.255.255.0	192.168.10.1
PC-C	NIC	192.168.20.3	255.255.255.0	192.168.20.1

- i. Assign PC-A to the Student VLAN.

Tetapkan PC-A pada VLAN pelajar.

[1 mark]
[1 markah]

- ii. Assign the switch S1 IP address to VLAN 99.

Tetapkan alamat IP pada Switch S1 kepada VLAN 99.

[1 mark]
[1 markah]

- iii. On S1, assign interfaces F0/11 – 24 to VLAN 10.

Di Switch S1, tetapkan antaramuka F0/11 – 24 kepada VLAN 10.

[1 mark]
[1 markah]

- iv. Add VLAN 30 to interface F0/24 without issuing the VLAN command.

Antaramuka F0/24 di tempatkan di VLAN 30 tanpa perlu menambah arahan VLAN.

[1 mark]

[1 markah]

- CLO2
C3 (d) Based on Figure B5 & Table B2 , implement 802.1Q Trunk-Based Inter-VLAN Routing on S1, S2 and R1.

Berdasarkan Rajah B5 & jadual B2, laksanakan 802.1Q Trunk-Based Inter-VLAN Routing pada S1, S2 dan R1.

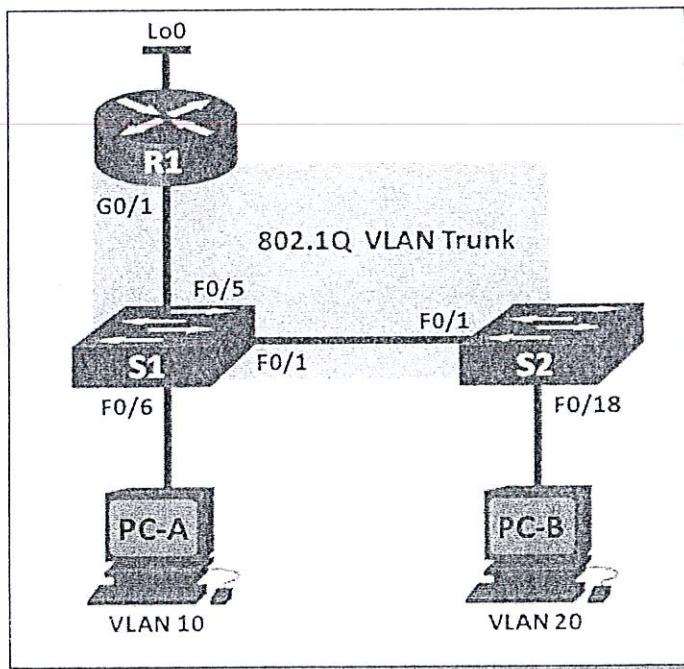


Figure B5 / Rajah B5

Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	G0/1.1	192.168.1.1	255.255.255.0	N/A
	G0/1.10	192.168.10.1	255.255.255.0	N/A
	G0/1.20	192.168.20.1	255.255.255.0	N/A
	Lo0	209.165.200.225	255.255.255.224	N/A
S1	VLAN 1	192.168.1.11	255.255.255.0	192.168.1.1
S2	VLAN 1	192.168.1.12	255.255.255.0	192.168.1.1
PC-A	NIC	192.168.10.3	255.255.255.0	192.168.10.1
PC-B	NIC	192.168.20.3	255.255.255.0	192.168.20.1

Table B2 / Jadual B2

Ports	Assignment	Network
S1 F0/1	802.1Q Trunk	N/A
S2 F0/1	802.1Q Trunk	N/A
S1 F0/5	802.1Q Trunk	N/A
S1 F0/6	VLAN 10 – Students	192.168.10.0/24
S2 F0/18	VLAN 20 – Faculty	192.168.20.0/24

- i. On S1, configure the interface connected to R1 as a trunk.

Pada S1, konfigur antaramuka yang menyambungkan dengan R1 sebagai trunk.

[1 mark]

[1 markah]

- ii. Create a subinterface on R1 G0/1 for VLAN 1 using 1 as the subinterface ID.

Ciptakan subinterface pada R1 G0/1 untuk VLAN 1 dengan menggunakan ID subinterface 1.

[1 mark]

[1 markah]

- iii. Configure the subinterface to operate on VLAN 1.

Konfigur subinterface untuk operasi pada VLAN 1

[1 mark]

[1 markah]

- iv. Configure the subinterface with the IP address from the Address Table.
Konfigur subinterface dengan menggunakan alamat IP daripada Jadual Alamat.

[1 mark]
[1 markah]

CLO2
C3

- (e) Based on Figure B6, as a network administrator, you will only allow SSH and secure HTTPS sessions.

Berdasarkan Rajah B6, sebagai pentadbir rangkaian, anda hanya akan membenarkan SSH dan sesi HTTPS yang selamat.

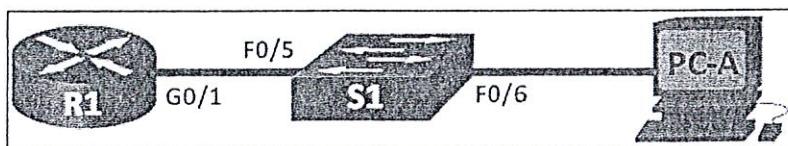


Figure B6 / Rajah B6

- i. On S1, generate an RSA crypto key using a modulus of 1024 bits.

Pada S1, hasilkan kunci crypto RSA menggunakan modulus 1024 bit.

[1 mark]
[1 markah]

- ii. On S1, Verify the SSH configuration.

Pada S1, sahkan konfigurasi SSH.

[1 mark]
[1 markah]

- iii. Issue the ip http server status command.

Isu arahan status ip http server.

[1 mark]
[1 markah]

- iv. Disable the HTTP service running on S1.

Lumpuhkan perkhidmatan HTTP yang berjalan pada S1.

[1 mark]
[1 markah]

CLO1
C2

- (f) There are three types of static routes which is Standard, Default and Floating. Based on the descriptors below, classify the types of static route.

Terdapat tiga jenis 'static routes' iaitu Standard, Default dan Floating. Berdasarkan kenyataan di bawah, tentukan jenis 'static routes'.

Descriptor	Type of Static Routes
1. Configured with a higher administrative distance than the original dynamic routing protocol. <i>Dikonfigurasikan dengan jarak pentadbiran yang lebih tinggi daripada protokol penghalaan dinamik asal.</i>	
2. Matches all packets and sends them to a specific default gateway. <i>Memadankan semua paket dan menghantarnya ke gerbang default tertentu.</i>	
3. Backup a route already discovered by a dynamic routing protocol. <i>Membuat salinan laluan yang telah ditemui oleh protokol penghalaan dinamik.</i>	
4. Useful when connecting to stub network. <i>Berguna apabila menyambung ke rangkaian stub.</i>	

[4 marks]
[4 markah]

CLO2
C3

- (g) As a network administrator, you have to configure Router-on-a-Stick Inter-VLAN routing on the R1 and S1. Write down the missing configuration from the Figure B7.

Sebagai pentadbir rangkaian, anda perlu mengkonfigurasi Router-on-a-Stick Inter-VLAN routing pada R1 dan S1. Tuliskan konfigurasi yang hilang pada Rajah B7.

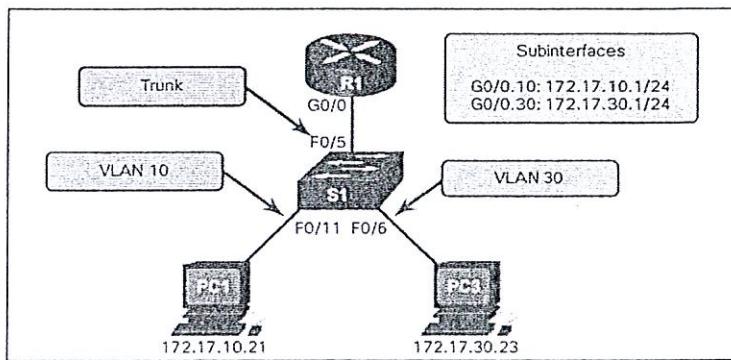


Figure B7 / Rajah B7

Switch S1:

```
S1(config)# vlan 10
S1(config-vlan)# vlan 30
S1(config-vlan)# interface f0/5
S1(config-if)# switchport mode trunk
S1(config-if)# end
```

Router R1:

```
R1(config)# interface ____ A _____
R1(config-subif)# ____ B _____
R1(config-subif)# ip address 172.17.10.1 255.255.255.0
R1(config-subif)# interface ____ C _____
R1(config-subif)# ____ D _____
R1(config-subif)# ip address ____ E ____
R1(config)# interface g0/0
R1(config-if)# no shutdown
```

[4 marks]
[4 markah]

CLO2
C3

- (h) Refer on Figure B8. Assume that VLANs 10 and 30 are instantiated on switch S1. To enable inter-VLAN routing for VLAN 10, write an appropriate configurations for interface F0/0 on router R1 and interface F0/5 on switch S1.

Rujuk Rajah B8. Andaikan VLAN 10 dan 30 telah diwujudkan di dalam switch S1. Untuk mengaktifkan routing inter-VLAN 10, tulis konfigurasi yang sesuai pada antaramuka F0/0 pada router R1 dan antaramuka F0/5 pada switch S1.

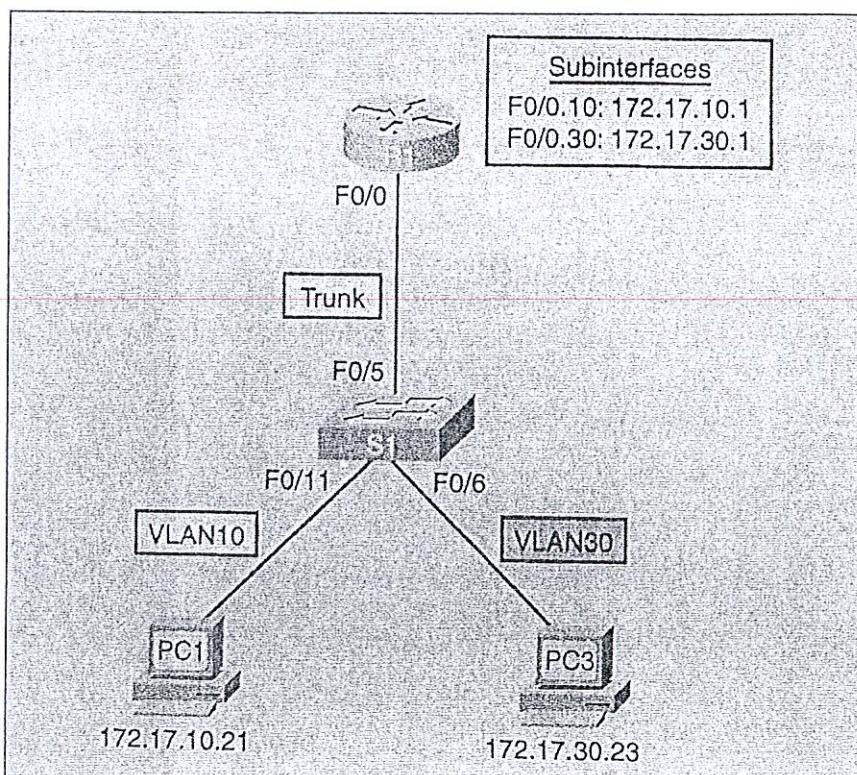


Figure B8/ Rajah B8

[4 marks]
[4 markah]

CLO2
C3

- (i) As a network administrator, you have to configure and verify Next Hop Static IPv6 Route on the R1. Write down the missing configuration from the Figure B9.

Sebagai pentadbir rangkaian, anda perlu mengkonfigurasi Router-on-a-Stick Inter-VLAN Routing pada R1 dan S1. Tuliskan konfigurasi yang hilang pada Rajah B9.

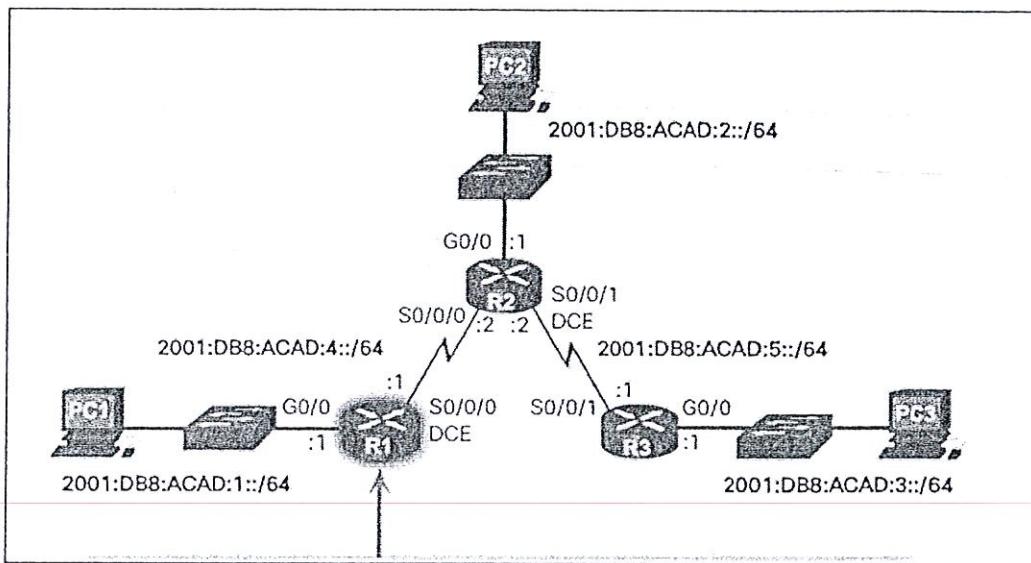


Figure B9 / Rajah B9

Configure next hope static route
 R1(config)# _____ A _____
 R1(config)# _____ B _____
 R1(config)# _____ C _____

Verify an IPv6 Next Hop Lookup
 R1(config)# _____ D _____

[5 marks]
 [5 markah]

END OF QUESTIONS

SOALAN TAMAT