

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
C1

- (a) List **TWO (2)** Structured Engineering Principles that followed to provide a successful implementation of any network design.

Senaraikan DUA (2) Prinsip Kejuruteraan Berstruktur yang boleh diikuti untuk menyediakan kejayaan dalam pelaksanaan mana-mana reka bentuk rangkaian.

[2 marks]

[2 markah]

CLO2
C3

- (b) Illustrate the layers of hierarchical network design.

Lakarkan lapisan rekabentuk rangkaian hierarki.

[3 marks]

[3 markah]

CLO1
C1

- (c) State **TWO (2)** layers of OSI Model that operate on Wide Area Network (WAN).

*Nyatakan **DUA (2)** lapisan Model OSI yang beroperasi pada Wide Area Network (WAN).*

[2 marks]

[2 markah]

CLO2
C3

- (d) Refer to **Figure B1**. Network administrator need to run PAP Authentication on router R1. Apply the **CORRECT** command to establish it.

*Rujuk **Rajah B1**. Pentadbir rangkaian perlu menjalankan "PAP Authentication" di router R1. Guna arahan yang **BETUL** untuk menetapkannya.*

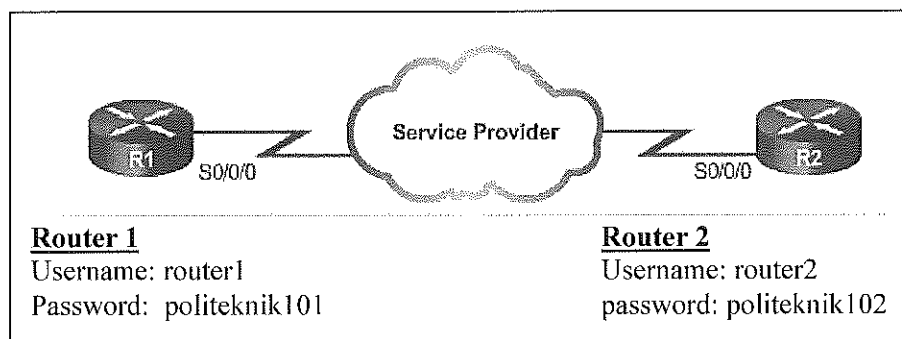


Figure B1 / Rajah B1

[3 marks]

[3 markah]

- CLO1
C3
- (e) Teleworking can provide benefits to employer, government, individual and community. List **TWO (2)** advantages of it if implemented on an individual.
- Teleworking boleh memberi manfaat kepada majikan, kerajaan, individu dan komuniti. Senaraikan **DUA (2)** kelebihan Teleworking jika dilaksanakan pada individu.*
- [2 marks]
- [2 markah]
- CLO1
C4
- (f) Differentiate the broadband solution category in term of bandwidth.
- Bezakan kategori penyelesaian rangkaian jalur lebar dari segi bandwidth.*
- [3 marks]
- [3 markah]
- CLO2
C2
- (g) A network engineer need to verify PPPoE configuration on the client router. Describe the function of **THREE (3)** commands that can verify for it.
- Jurutera rangkaian perlu mengesahkan konfigurasi "PPPoE" pada router pelanggan. Huraikan fungsi bagi **TIGA (3)** arahan yang boleh mengesahkannya.*
- [6 marks]
- [6 markah]

CLO2
C3

- (h) Refer to **Figure B2**. Network Administrator need to configure PPPoE Client to dialer interface with username POLITEKNIK and password poli2018. Construct the suitable command to the POLITEKNIK router.

Rujuk Rajah B2. Pentadbir Rangkaian perlu mengkonfigurasi PPPoE Client untuk dialer interface dengan nama pengguna POLITEKNIK dan kata laluan poli2018. Binakan arahan yang sesuai kepada router POLITEKNIK.

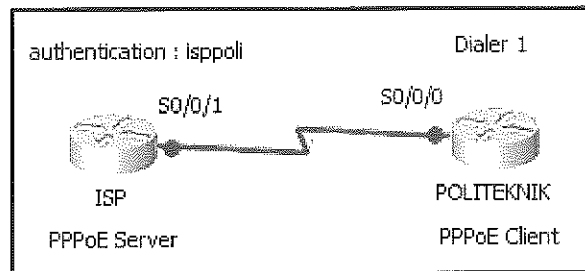


Figure B2 / Rajah B2

[6 marks]

[6 markah]

CLO2
C4

- (i) Refer to **Figure B3**. There is some mistake while configuring default MTU size. PPPoE supports an MTU with balance to accommodate the reduction of 8-byte PPPoE header from default MTU. Transform the suitable MTU size that should be implemented to the interface dialer.

*Rujuk **Rajah B3**. Terdapat kesilapan semasa mengkonfigurasi saiz "MTU". "PPPoE" menyokong "MTU" dengan keseimbangan menampung pengurangan "8-byte PPPoE header" dari saiz "MTU" asal. Ubah saiz "MTU" yang bersesuaian agar dapat dilaksanakan untuk "interface dialer".*

```
RouterPoli# show running-config | section interface Dialer2
interface Dialer2
mtu 1500
ip address negotiated
encapsulation ppp

<output omitted>
```

Figure B3 / Rajah B3

[3 marks]

[3 markah]

QUESTION 2

SOALAN 2

CLO1
C3

- (a) Draw a VPN topology setup with Generic Routing Encapsulation (GRE) Protocol. The topology setup must include passenger protocol, transport protocol and a tunnel with the GRE as the carrier protocol.

Lukis satu topologi VPN dengan protokol 'Generic Routing Encapsulation (GRE)'. Topologi tersebut mestilah termasuk dengan protokol 'passenger', protokol 'transport' dan terowong dengan GRE sebagai protokol 'carrier'.

[5 marks]

[5 markah]

CLO1
C3

- (b) Determine the correct troubleshooting method with the statement given below.

Tentukan kaedah penyelesaian masalah yang betul bagi pernyataan yang diberikan di bawah.

- i. Used when suspected problem is on cabling or device failure.
Digunakan apabila masalah yang disyaki adalah pada kabel atau kegagalan peranti.
- ii. Used for problem that likely involves software settings.
Digunakan untuk masalah yang mungkin melibatkan tetapan perisian.
- iii. Start with an informed guess for which OSI layer to begin troubleshooting.
Mulakan dengan meneka maklumat untuk lapisan OSI untuk memulakan penyelesaian masalah.

[3 marks]

[3 markah]

CLO2
C3

- (c) As a network administrator, you are required to configure a Generic Routing Encapsulation (GRE) tunnel in VPN network.

Sebagai seorang pentadbir rangkaian, anda dikehendaki untuk mengonfigurasi terowong 'Generic Routing Encapsulation (GRE) dalam rangkaian VPN.

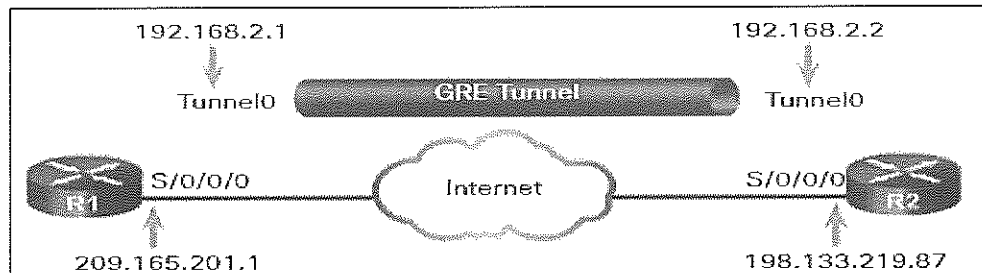


Figure B4 / Rajah B4

Based on the topology given in **Figure B4**, write the **CORRECT** command to perform the following tasks;

*Berdasarkan topologi yang diberikan dalam **Rajah B4**, tulis arahan yang **BETUL** untuk melaksanakan tugas berikut:*

- i. Create a tunnel interface with tunnel number set to 0.

Wujudkan satu antara muka terowong dengan nombor terowong di setkan kepada 0.

[1 mark/ 1 markah]

- ii. Specify the tunnel source IP address.

Tentukan alamat IP sumber terowong.

[2 marks/ 2 markah]

- iii. Specify the tunnel destination IP address.

Tentukan alamat IP destinasi terowong.

[2 marks/ 2 Markah]

CLO2
C4

- (d) Refer to **Figure B5** and **Table B1**. A GRE tunnel between two sites has been misconfigured. You have been asked to rectify the configuration errors. You then issue the **show running config** command on both router RA and router RB. The output is shown in **Figure B5**. Analyze the configuration in **Figure B5**, and list **TWO (2)** network errors and **TWO (2)** corrections need to be done in the configuration based on the addressing table shown in **Table B1**.

*Rujuk Rajah B5 dan Jadual B1. Terowong GRE antara dua tapak telah tersalah konfigur. Anda telah diminta untuk membetulkan kesilapan konfigurasi. Anda kemudian mengeluarkan arahan **show running config** pada kedua-dua router RA dan router RB. Output ditunjukkan dalam Rajah B5. Analisa konfigurasi dalam Rajah B5 dan senaraikan DUA (2) kesilapan serta DUA (2) pembetulan rangkaian yang perlu dilakukan dalam konfigurasi berdasarkan jadual pengalamatan yang ditunjukkan dalam Jadual B1.*

<pre> RA#show running-config Building configuration... Current configuration : 1049 bytes ! hostname RA ! ! ! interface Tunnel0 ip address 172.31.0.1 255.255.255.0 mtu 1476 tunnel source Serial0/0/0 tunnel destination 64.103.211.2 ! ! interface GigabitEthernet0/0 ip address 192.168.1.1 255.255.255.252 duplex auto speed auto ! interface GigabitEthernet0/1 no ip address duplex auto speed auto shutdown ! interface GigabitEthernet0/2 no ip address duplex auto speed auto shutdown ! interface Serial0/0/0 ip address 209.165.122.2 255.255.255.252 ! interface Serial0/0/1 no ip address clock rate 2000000 shutdown ! interface Vlan1 no ip address shutdown ! ip classless ip route 0.0.0.0 0.0.0.0 Serial0/0/0 ip route 172.31.1.0 255.255.255.0 64.103.211.2 ! ip flow-export version 9 <output omitted> </pre>	<pre> RB#show running-config Building configuration... Current configuration : 1053 bytes ! hostname RB ! ! ! interface Tunnel0 ip address 192.168.1.2 255.255.255.252 mtu 1476 tunnel source GigabitEthernet0/0 tunnel destination 192.168.1.1 ! ! interface GigabitEthernet0/0 ip address 172.31.1.1 255.255.255.0 duplex auto speed auto ! interface GigabitEthernet0/1 no ip address duplex auto speed auto shutdown ! interface GigabitEthernet0/2 no ip address duplex auto speed auto shutdown ! interface Serial0/0/0 ip address 64.103.211.2 255.255.255.252 ! interface Serial0/0/1 no ip address clock rate 2000000 shutdown ! interface Vlan1 no ip address shutdown ! ip classless ip route 0.0.0.0 0.0.0.0 Serial0/0/0 ip route 172.31.0.0 255.255.255.0 192.168.1.1 ! ip flow-export version 9 <output omitted> </pre>
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Figure B5/ Rajah B5

Table B1 / *Jadual B1*

Device	Interface	IP Address	Subnet Mask	Default Gateway
RA	G0/0	172.31.0.1	255.255.255.0	N/A
	S0/0/0	209.165.122.2	255.255.255.252	N/A
	Tunnel 0	192.168.1.1	255.255.255.252	N/A
RB	G0/0	172.31.1.1	255.255.255.0	N/A
	S0/0/0	64.103.211.2	255.255.255.252	N/A
	Tunnel 0	192.168.1.2	255.255.255.252	N/A
PC-A	NIC	172.31.0.2	255.255.255.0	172.31.0.1
PC-C	NIC	172.31.1.2	255.255.255.0	172.31.1.1

[8 marks]

[8 markah]

CLO2
C3

- (e) As a network administrator, you are required to configure and generate logging messages on a router. Write the **CORRECT** command to perform the following tasks;

*Sebagai pentadbir rangkaian, anda dikehendaki untuk mengkonfigurasi dan menjana mesej 'logging' pada router. Tulis arahan yang **BETUL** untuk melaksanakan tugas berikut;*

- i. Set the logging ip destination to 195.168.1.3
Setkan alamat ip 'logging' kepada 195.168.1.3

[1 mark/ 1 markah]

- ii. Set the trapping severity to 'Warning'- level 4
Setkan 'trapping severity' kepada 'Warning'- level 4

[1 mark/ 1 markah]

- iii. Set the logging source interface to gigabitEthernet 0/0
Setkan sumber antara muka 'logging' ke gigabitEthernet 0/0

[2 marks/ 2 markah]

SOALAN TAMAT