

SULIT



**KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI**

**BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
KEMENTERIAN PENDIDIKAN TINGGI**

JABATAN TEKNOLOGI MAKLUMAT DAN KOMUNIKASI

PEPERIKSAAN AKHIR

SESI II : 2023/2024

DFN30353 : SWITCHING ESSENTIALS

TARIKH : 05 JUN 2024

MASA : 2.30 PETANG - 4.30 PETANG (2 JAM)

Kertas ini mengandungi **DUA PULUH TUJUH (27)** halaman bercetak.

Bahagian A: Objektif (30 soalan)

Bahagian B: Struktur (2 soalan)

Dokumen sokongan yang disertakan : Tiada

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT

SECTION B: 55 MARKS
BAHAGIAN B: 55 MARKAH

INSTRUCTION:

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

ARAHAN:

Bahagian ini mengandungi TWO (2) soalan berstruktur. Jawab SEMUA soalan.

QUESTION 1

SOALAN 1

- CLO1 (a) i. Identify the host and network portion for the 192.168.3.210/24 address.

*Kenalpasti bahagian hos dan bahagian rangkaian untuk alamat
192.168.3.210/24.*

[2 marks]
[2 markah]

- CLO1 ii. Identify the prefix, subnet and interface ID for the given IPv6 address
2001:8ef:41cb:b805:bfc5:ddb8:c0d3:72ee

*Kenal pasti prefix, subnet dan antaramuka ID bagi alamat IPv6 yang
diberikan 2001:8ef:41cb:b805:bfc5:ddb8:c0d3:72ee*

[3 marks]
[3 markah]

CLO1

iii. Given a network address 192.168.70.0/27. Find the following value:

Diberi alamat rangkaian 192.168.70.0/27. Cari nilai berikut:

- Subnet mask.
'Subnet mask'.
- Total IP address persubnet.
Jumlah alamat IP persubnet.
- Total available host IP address.
Jumlah alamat IP hos tersedia.
- The first available host IP address.
Alamat IP hos tersedia yang pertama.
- The last available host IP address.
Alamat IP hos tersedia yang terakhir.
- Network address.
Alamat rangkaian.
- Broadcast address.
Alamat broadcast.

[7 marks]
[7 markah]

CLO1

(b) i. Describe **TWO (2)** situation that requires an administrator to disable DTP while managing a LAN.

Huraikan DUA (2) keadaan yang akan membuatkan pentadbir menyahaktifkan DTP semasa menguruskan LAN.

[2 marks]
[2 markah]

CLO1

ii. Construct configurations to create a VLAN named "JPPKK-Staff" with its VLAN ID 42.

Bina konfigurasi untuk menciptakan 'VLAN' bernama "JPPKK-Staff" dengan VLAN ID 42.

[4 marks]
[4 markah]

CLO1

- iii. Table B1b(iii) shows the current MAC Address Table in a switch and an incoming frame from port Fa0/9. Determine **TWO (2)** actions the switch will do when it receives that frame.

*Jadual B1b(iii) menunjukkan MAC Address Table semasa dalam suis dan satu frame masuk dari port Fa0/9. Tentukan **DUA (2)** tindakan yang akan dilakukan oleh suis apabila ia menerima frame tersebut.*

Table B1b(iii) / *Jadual B1b(iii)*

Current MAC Address Table				
Ports		MAC Address		
Fa0/11		d0-d0-10-c0-fe-3e		
Fa0/24		2c-47-1e-da-33-f3		
Incoming Frame from Fa0/9				
Preamble	d0-d0-10-c0-fe-3e	20-d0-ac-de-fa-1a	IP Packet Data	FCS

[4 marks]
[4 markah]

QUESTION 2

SOALAN 2

- CLO1 (a) i. List **THREE (3)** ways to implement Inter-VLAN routing.

*Senaraikan **TIGA (3)** cara untuk melaksanakan Inter-VLAN routing.*

[3 marks]
[3 markah]

CLO1

- ii. Illustrate a suitable topology to show a correct Legacy Inter-VLAN routing for **THREE (3)** VLAN.

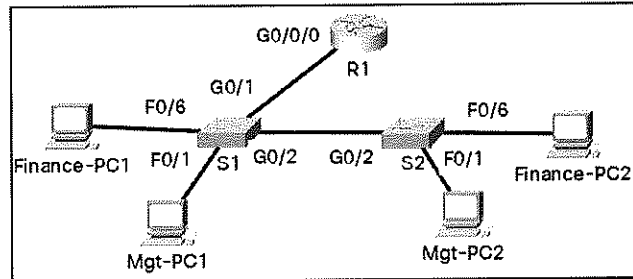
*Lukiskan topologi yang sesuai untuk menunjukkan Legacy Inter-VLAN routing yang betul bagi **TIGA (3)** VLAN.*

[4 marks]
[4 markah]

CLO1

- iii. Based on the topology and configuration snippets given on Figure B2a(iii), analyse and propose a correction command to be taken so every PC able to communicate.

Berdasarkan topologi dan coretan konfigurasi yang diberikan pada Rajah B2a(iii), analisa dan cadangkan arahan pembetulan yang perlu diambil supaya setiap PC boleh berkomunikasi.



```
S1#show vlan brief
```

VLAN	Name	Status	Ports
1	default	active	Fa0/2, Fa0/3, Fa0/4, Fa0/5 Fa0/7, Fa0/8, Fa0/9, Fa0/10 Fa0/11, Fa0/12, Fa0/13, Fa0/14 Fa0/15, Fa0/16, Fa0/17, Fa0/18 Fa0/19, Fa0/20, Fa0/21, Fa0/22 Fa0/23, Fa0/24, Gig0/1
22	Mgt	active	Fa0/1
33	Finance	active	Fa0/6
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

```
S1#show interface trunk
```

Port	Mode	Encapsulation	Status	Native vlan
Gig0/2	on	802.1q	trunking	1

Port	Vlans allowed on trunk
Gig0/2	22,33

```
S2#show vlan brief
```

VLAN	Name	Status	Ports
1	default	active	Fa0/2, Fa0/3, Fa0/4, Fa0/5 Fa0/7, Fa0/8, Fa0/9, Fa0/10 Fa0/11, Fa0/12, Fa0/13, Fa0/14 Fa0/15, Fa0/16, Fa0/17, Fa0/18 Fa0/19, Fa0/20, Fa0/21, Fa0/22 Fa0/23, Fa0/24, Gig0/1
22	Mgt	active	Fa0/1
33	Finance	active	Fa0/6
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

```
S2#show interface trunk
```

Port	Mode	Encapsulation	Status	Native vlan
Gig0/2	on	802.1q	trunking	1

Port	Vlans allowed on trunk
Gig0/2	22

```
R1#show run | section GigabitEthernet0/0/0
interface GigabitEthernet0/0/0
 no ip address
 duplex auto
 speed auto
interface GigabitEthernet0/0/0.22
 encapsulation dot1q 23
 ip address 192.168.22.1 255.255.255.0
interface GigabitEthernet0/0/0.33
 encapsulation dot1q 33
 ip address 192.168.33.1 255.255.255.0
```

Figure B2a(iii) / Rajah B2a(iii)

[4 marks]
[4 markah]

- CLO1 (b) i. Figure B2b(i) shows a topology of three switches along with its BID and interface ID. Identify the Root Bridge and every port role for all switches.

Rajah B2b(i) menunjukkan topologi tiga switch bersama dengan BID dan ID antara mukanya. Kenal pasti Root Bridge dan setiap peranan antara muka untuk semua switch.

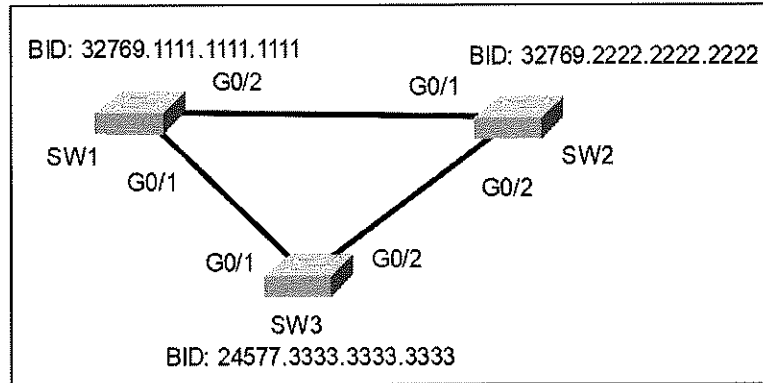


Figure B2b(i) / *Rajah B2b(i)*

[5 marks]
[5 markah]

- CLO1 ii. Based on Figure B2b(ii), construct a configuration for EtherChannel with a valid LACP mode on switch SW2, if switch SW1 is configured using passive mode.

Berdasarkan Rajah B2b(ii), bina konfigurasi untuk EtherChannel dengan mod LACP yang sah pada switch SW2, jika switch SW1 dikonfigurasi menggunakan mod passive.

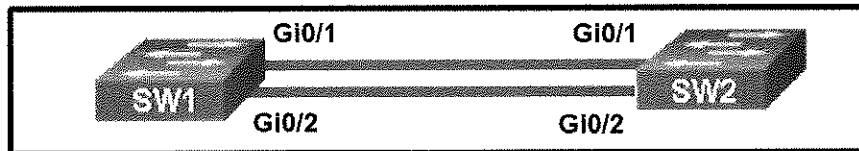


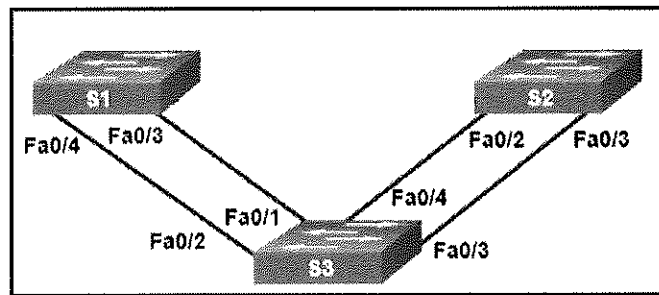
Figure B2b(ii) / *Rajah B2b(ii)*

[2 marks]
[2 markah]

CLO1

- iii. Refer to Figure B2b(iii). Interface Fa0/1 until Fa0/4 on Switch S3 already configured using EtherChannel with PAgP mode auto. Propose a valid EtherChannel configuration on S2 for to make sure the channel number 2 can be established.

Rujuk Rajah B2b(iii). Antara muka Fa0/1 sehingga Fa0/4 pada Switch S3 sudah dikonfigurasi menggunakan EtherChannel dengan mod PAgP auto. Cadangkan konfigurasi EtherChannel yang sah pada S2 untuk memastikan nombor saluran 2 boleh diwujudkan.



```

interface FastEthernet0/2
channel-group 4 mode active
!
interface FastEthernet0/3
channel-group 4 mode active
  
```

Figure B2b(iii) / *Rajah B2b(iii)*

[4 marks]
[4 markah]

- CLO1 (c) i. List **TWO (2)** supported Port Security Aging on an interface.

Senaraikan DUA (2) Port Security Aging yang disokong pada antara muka.

[2 marks]
[2 markah]

- CLO1 ii. Explain how DHCP Snooping can be used to prevent DHCP Spoofing attacks.

Terangkan bagaimana DHCP Snooping boleh digunakan untuk mencegah serangan DHCP Spoofing.

[4 marks]
[4 markah]

CLO1

- iii. In STP attack, attackers can manipulate the Spanning Tree Protocol (STP) to conduct an attack by spoofing the root bridge and changing the topology of a network. Based on Figure B2c(iii), construct a BPDU guard configurations on all 24 FastEthernet interfaces at S1 to mitigate this attack.

Dalam serangan STP, penyerang boleh memanipulasi Spanning Tree Protocol (STP) untuk menjalankan serangan dengan memalsukan root bridge dan menukar topologi rangkaian. Berdasarkan Rajah B2c(iii), bina konfigurasi BPDU guard pada kesemua 24 antara muka FastEthernet di S1 untuk mengurangkan serangan ini.

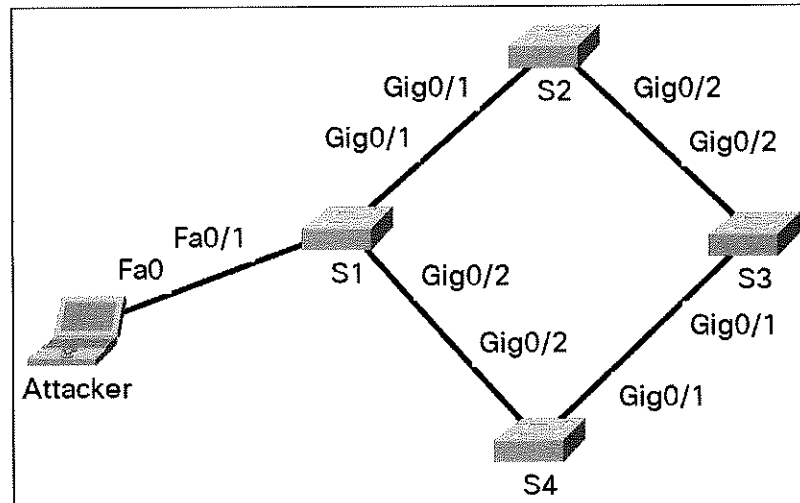


Figure B2c(iii) / Rajah B2c(iii)

[5 marks]
[5 markah]

SOALAN TAMAT