

SULIT



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

JABATAN TEKNOLOGI MAKLUMAT & KOMUNIKASI

PEPERIKSAAN AKHIR

SESI JUN 2018

DFN5023: NETWORK DESIGN

TARIKH : 11 NOVEMBER 2018

MASA : 2.30 PETANG - 4.30 PETANG (2 JAM)

Kertas ini mengandungi **TIGA PULUH EMPAT (34)** 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 the questions.

ARAHAN :

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

QUESTION 1

- | | | |
|------------|---|-------------------------|
| CLO1
C1 | a) State THREE (3) steps in designing network project.
<i>Nyatakan TIGA (3) langkah dalam mereka bentuk projek rangkaian.</i> | [3 marks]
[3 markah] |
| CLO1
C2 | b) Explain THREE (3) advantages of creating a server farm.
<i>Terangkan TIGA (3) kelebihan membina kumpulan pelayan.</i> | [3 marks]
[3 markah] |
| CLO3
C1 | c) Identify TWO (2) technologies that are used at the core layer.
<i>Kenal pasti DUA (2) teknologi yang digunakan di lapisan teras.</i> | [2 marks]
[2 markah] |
| CLO3
C2 | d) Explain TWO (2) factors to be considered for designing Access Layer.
<i>Terangkan DUA (2) faktor yang perlu dipertimbangkan dalam mereka bentuk Lapisan Capaian.</i> | [2 marks]
[2 markah] |

CLO1
C2

- e) Explain **TWO (2)** main responsibility of Network Designer.
Terangkan DUA (2) tanggungjawab utama Pereka bentuk Rangkaian.

[2 marks]

[2 markah]

CLO1
C3

- f) Illustrate **THREE (3)** stages of router boot-up process.
Gambarkan TIGA (3) fasa proses boot-up router.

[4 marks]

[4 markah]

CLO3
C3

- g) Based on Figure B1. Determine **FOUR (4)** strengths obtained from the network design.
Merujuk kepada Rajah B1. Tentukan EMPAT (4) kekuatan yang diperolehi daripada reka bentuk rangkaian tersebut.

[4 marks]

[4 markah]

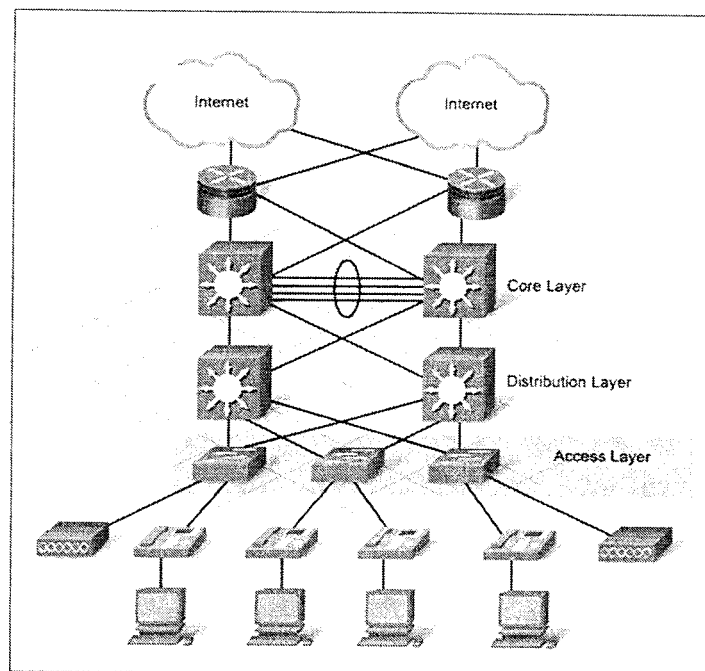


Figure B1 /Rajah B1

CLO3
C4

- h) Examine the output from Figure B2. Identify **FOUR (4)** information obtained from the output.

*Perhatikan keluaran dari Rajah B2. Kenal pasti **EMPAT (4)** maklumat yang diperolehi daripada keluaran tersebut.*

[4 marks]

[4 markah]

```
Cisco Internetwork Operating System Software
IOS(tm)2500 Software (C2500-I-L),Version 12.0(17a),RELEASE
SOFTWARE (fc1)
Copyright (c)1986-2002 by cisco Systems, Inc.
Compiled Mon 11-Feb-02 05:55 by kellythw
image text-base:0x00001000
ROM:system Bootstrap,Version 11.0(10c),SOFTWARE
BOOTFLASH :3000 Bootstrap Software (IGS-BOOT-R),Version
11.0(10c),RELEASE SOFTWARE (fc1)
System image file is "flash:c2500-i-1.120-17a.bin"
cisco 2500 (68030 processor(revision N) With 2048K/2048K
bytes of memory.
processor bord ID 08860060,with hardware revision 00000000
Bridging software.
X.25 software,version 3.0.0.
1 Ethernet/IEEE 802.3 interface(s)
2 Serial network interface(s)

32K bytes of non-volatile Configuration memory.

8192K bytes of processor board system flash (Read ONLY)

Configuration register is 0x2102
Router#_
```

Figure B2 /Rajah B2

QUESTION 2

CLO1
C1

- a) State **THREE (3)** types of application communication in network.

*Nyatakan **TIGA (3)** jenis komunikasi aplikasi dalam rangkaian.*

[3 marks]

[3 markah]

CLO1
C3

- b) Higher bandwidths enable network users to share audio and video on their computer systems. Determine the types of video characteristics based on the following scenario.

Jalur lebar yang berkelajuan tinggi membolehkan pengguna rangkaian untuk berkongsi audio dan video melalui sistem komputer mereka. Tentukan ciri-ciri video berdasarkan situasi berikut.

- i. Yuni shares video data packets to yumna using Whatsapp application.
Yuni berkongsi paket data video kepada yumna dengan menggunakan aplikasi WhatsApp.
- ii. Mawi downloaded and stored movie for later viewing with their friends.
Mawi memuat turun filem dan menyimpan untuk tontonan kemudian bersama rakan-rakannya.
- iii. Hanis is watching the video using smart phone that can be viewed live.
Hanis menonton video menggunakan telefon pintarnya yang boleh dilihat secara langsung.

[3 marks]

[3 markah]

CLO3
C2

- c) Explain the Quality of Services (QoS)

Terangkan Quality of Services (QoS)

[2 marks]

[2 markah]

CLO3
C3

- d) Based on the Figure B3. Write the external traffic flows when host H2 send data to host H3.

Berdasarkan Rajah B3. Tulis aliran trafik luaran apabila terminal H2 menghantar data ke terminal H3.

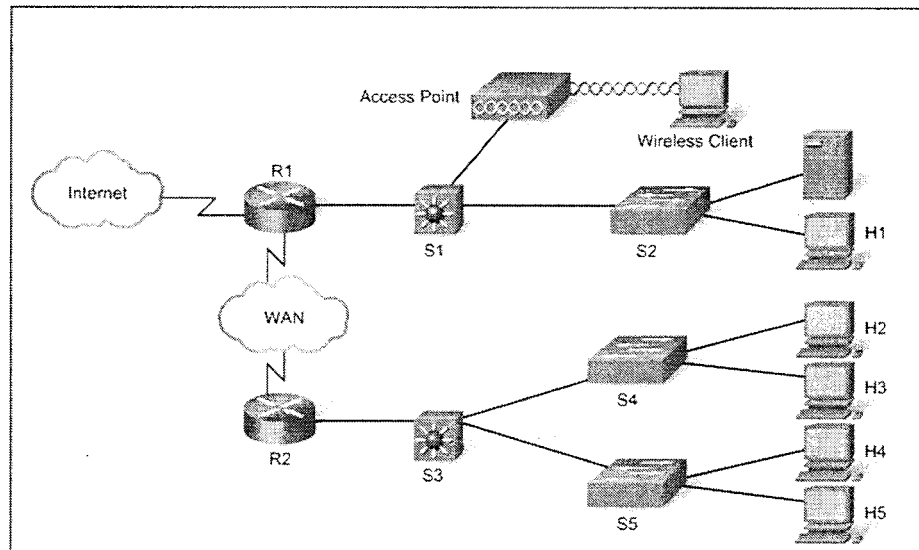


Figure B3/Rajah B3

[4 marks]

[4 markah]

CLO1
C3

- e) Based on problem given. Identify the wireless technologies used for each scenario.

Berdasarkan masalah yang diberikan. Kenal pasti teknologi tanpa wayar yang digunakan untuk setiap situasi.

- i. Musa checks his e-mail notification at the airport.
Musa memeriksa pemberitahuan e-melnya di lapangan kapal terbang.
- ii. Ainul changes the channel on her television with a remote.
Ainul mengubah saluran di televisyennya dengan alat kawalan jauh.
- iii. Amin connect his phone with television and enjoy watch movie, surfing on big screen.
Amin menyambungkan telefonnya dengan televisyen dan menikmati filem menonton filem, melayar di skrin besar.

[3 marks]

[3 markah]

CLO3
C1

- f) State **TWO (2)** major categories of wireless network.

*Nyatakan **DUA (2)** kategori utama bagi rangkaian tanpa wayar.*

[2 marks]

[2 markah]

CLO3
C2

- g) Explain **TWO (2)** benefits of wireless network.

*Terangkan **DUA (2)** kelebihan bagi rangkaian tanpa wayar.*

[2 marks]

[2 markah]

CLO3
C3

- h) John have trouble connecting his smartphone and laptop to home Wireless LAN. Suggest **THREE (3)** ways to do troubleshooting to solve that problem.

*John berhadapan dengan masalah menghubungkan telefon pintar dan komputer peribadi kepada Wireless LAN di rumahnya. Cadangkan **TIGA (3)** langkah untuk menyelesaikan masalah tersebut*

[3 marks]

[3 markah]

CLO3
C4

- i) Based on the Figure B4, suggest **THREE (3)** suitable access points at label (A, B, C, D, E and F) to ensure all hosts that can receive the signal. Give **ONE (1)** reason.

Merujuk kepada Rajah B4, cadangkan **TIGA (3)** Access Point yang sesuai pada label (A, B, C, D, E dan F) untuk memastikan setiap hos boleh menerima isyarat. Berikan **SATU (1)** alasan anda.

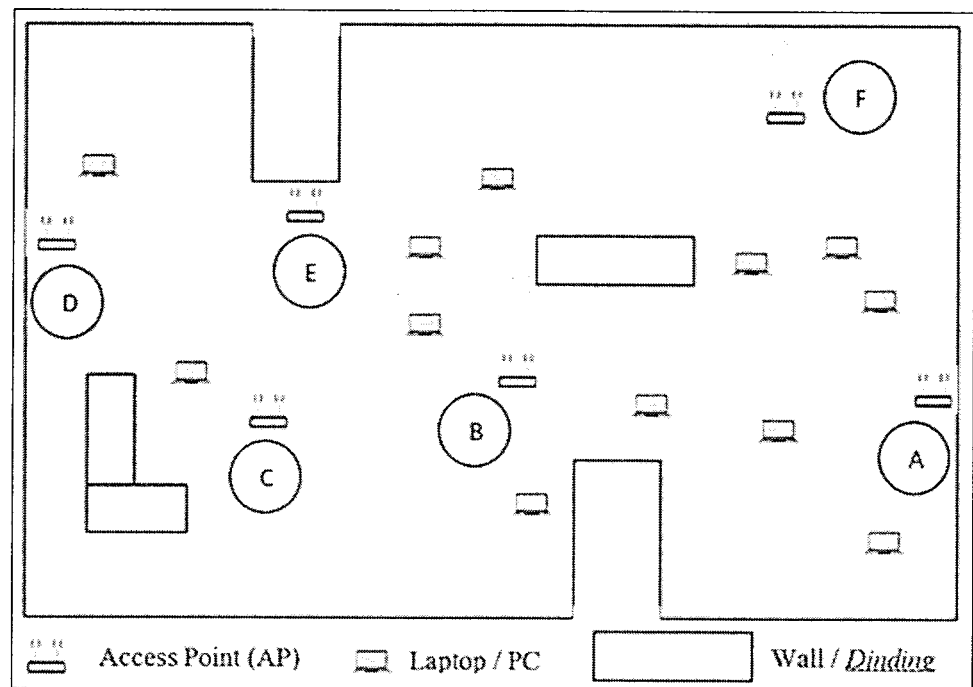


Figure B4/Rajah B4

[3 marks]

[3 markah]

CLO3
C3

- j) A network engineer responsible to create a testing plan to combine the existing data and video surveillance networks, and support the addition of IP telephony in the company ZNetwork to demonstrate the end-to-end IP connectivity. Determine **TWO (2)** main points followed by its explanation for technical requirements that should be tested on the network.

*Seorang jurutera rangkaian bertanggungjawab untuk membuat rancangan ujian untuk menggabungkan rangkaian data dan rangkaian pengawasan video yang sedia ada serta menyokong penambahan telefon IP di syarikat ZNetwork untuk melaksanakan hubungan IP end-to-end. Tentukan **DUA (2)** poin utama diikuti penjelasan untuk keperluan teknikal yang perlu diuji pada rangkaian tersebut.*

[3 marks]

[3 markah]

CLO3
C4

- k) Refer Table 1. Draw the example of timeline for work progress in implementation of ZZNet network in 6 months.

Merujuk kepada Jadual 1. Lukiskan contoh garis masa bagi kemajuan kerja pelaksanaan rangkaian ZZNet dalam masa 6 bulan.

PHASE	CONDITIONS
Requirements Gathering	Size of the area, number of buildings / floor impact this time in (1 – 14 days)
Design Phase	Predictive 1 million + square feet will take longer in 2 weeks
Material Lead Time	Depends on supplier timeline and logistics of shipping in 1 month
Implementation Time	(30 - 180 days) Size of the area, number of buildings / floor impact this time. Change management delays.
Admin / Operations Training	May vary based on course material needed 1 week
Acceptance Testing / Sign Off	Depends on the project's scope in 1 week

Table B1/Jadual B1

[3 marks]

[3 markah]

SOALAN TAMAT