SULIT

POLITEKNIK MALAYSIA

BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK
KEMENTERIAN PENDIDIKAN TINGGI

JABATAN KEJURUTERAAN ELEKTRIK

PEPERIKSAAN AKHIR

SESI JUN 2017

DEC3023: COMPUTER NETWORKING FUNDAMENTALS

TARIKH : 27 OKTOBER 2017
MASA : 8.30 AM – 10.30 AM (2 JAM)

Kertas ini mengandungi **LIMA BELAS (15)** halaman bercetak.
Bahagian A: Soalan Objektif (10 soalan)
Bahagian B: Soalan Struktur (4 soalan)
Bahagian C: Soalan Esei (2 soalan)
Dokumen sokongan yang disertakan : Tiada

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SECTION A: 10 MARKS

BAHAGIAN A: 10 MARKAH

INSTRUCTION:

This section consists of **TEN (10)** objective questions. Mark your answers in the OMR form provided.

ARAHAN:

*Bahagian ini mengandungi **SEPULUH (10)** soalan objektif. Tandakan jawapan anda di dalam borang OMR yang disediakan.*

CLO1
C1

1. Identify the meaning of "*computer network*".

   Kenalpasti maksud "rangkaian komputer".

   A. A collection of computers and other hardware components interconnected by communication channels that allow sharing of resources and information.
   Koleksi komputer dan komponen perkakasan lain yang dihubungkan dengan saluran komunikasi bagi membolehkan perkongsian sumber dan maklumat.

   B. Self-sufficient system. There is no connection to any other computer.
   Sistem yang mencukupi. Tiada sambungan ke mana-mana komputer lain.

   C. A collection of networked computers that reside within a small physical region.
   Satu kumpulan komputer rangkaian yang berada dalam kawasan fizikal yang kecil.

   D. Connection at multiple networks which are located in different locations in the city. The communication links generally owned by a network service provider.
   Penyambungan pelbagai rangkaian yang terletak di lokasi yang berlainan di dalam bandar. Pautan komunikasi biasanya dimiliki oleh penyedia perkhidmatan rangkaian.

CLO1 C1

2. Which are the function of Network Interface Card (NIC)?

Yang manakah adalah fungsi bagi Kad Antaramuka Rangkaian (NIC)?

A. A connection point, either a redistribution point or a communication endpoint (some terminal equipment).
Titik sambungan, sama ada titik pengedaran atau titik akhir komunikasi (beberapa peralatan terminal).

B. The software that runs on a server and enables the server to manage data, users, groups, security, applications, and other networking functions.
Sebuah perisian pada pelayan yang membolehkan pelayan mengurus data, pengguna, kumpulan, keselamatan, aplikasi, dan fungsi lain bagi rangkaian.

C. A computer hardware component that connects computer to a computer network.
Komponen perkakasan komputer yang menghubungkan komputer ke rangkaian komputer.

D. To transform a set of Unicode characters into a sequence of bytes.
Untuk mengubah satu set aksara Unicode ke dalam urutan bait.

CLO1 C1

3. Which one of the following is the correct order for Open System Interconnection (OSI) model from higher to lower levels?

Yang manakah antara berikut susunan yang betul bagi model OSI dari tahap yang lebih tinggi ke tahap yang lebih rendah?

A. Physical, Data Link, Transport, Session, Presentation, Network & Application
B. Application, Presentation, Session, Transport, Network, Data Link & Physical
C. Application, Data Link, Network, Transport, Session, Presentation & Physical
D. Physical, Data Link, Network, Transport, Session, Presentation & Application

CLO2 C1

4. Domain Name Service (DNS) is naming system and it controlled by ICANN. Choose the correct answer for example of DNS.

Domain Name Service (DNS) adalah sistem penamaan dan ia dikawal oleh ICANN. Pilih jawapan yang betul bagi contoh DNS.

A. Htttt://google.com
B. Htttp;//yahoo.cop
C. wwww.youtube.co
D. www.polisas.edu.my

CLO1 C2

5. In data transmission, there are transmission flaws in analog and digital signals. The losses of a signal strength as it travels away from its source is known as .....

Dalam penghantaran data, terdapat kecacatan penghantaran dalam isyarat analog dan digital. Kehilangan kekuatan isyarat ketika penghantaran keluar dari sumbernya dikenali sebagai .....

A. Attenuation
Pelemahan
B. Noise
Hingar
C. Crosstalk
Cakap silang
D. Latency
Lengahan

CLO2 C2

6. Communication between a computer and a wireless mouse is an example of

Komunikasi di antara komputer dan tetikus tanpa wayar adalah contoh kepada

A. Full-duplex transmission.
B. Half-duplex transmission.
C. Simplex transmission.
D. Automatic transmission.

CLO1 C2

7. What is Wired Equivalent Privacy (WEP)?

Apakah yang dimaksudkan dengan Privasi Setaraf Berwayar (WEP)?

A. Security algorithm for Ethernet.
Algoritma keselamatan untuk Ethernet.

B. Security algorithm for wireless networks.
Algoritma keselamatan untuk rangkaian tanpa wayar.

C. Security algorithm for USB communication.
Algoritma keselamatan untuk komunikasi USB.

D. Security algorithm for serial communication.
Algoritma keselamatan untuk komunikasi siri.

CLO2
C2

8. Which one of the following scenario could be a symptom of spyware on a system?

Yang manakah antara senario berikut merupakan gejala spyware pada sistem?

A. Deletion of key application software.
Perisian aplikasi utama dibuang.

B. Hard disk corruption or failure.
Kerosakan atau kegagalan cakera keras.

C. Browser default page being changed.
Halaman 'default' pelayar internet berubah.

D. Mouse or keyboard failure.
Kegagalan tetikus atau papan kekunci.

CLO1
C3

9. Jenny is a network technician. During troubleshooting, she detects a problem either from hardware or software part. Which one of the following the most important questions to be asked to the customer/client?

Jenny adalah seorang juruteknik rangkaian. Dalam proses menyelesaikan masalah, dia mengesan terdapat masalah pada bahagian perkakasan atau perisian. Antara berikut, yang manakah soalan yang paling penting untuk ditanya kepada pengguna?

A. Is the computer plugged in?
Adakah komputer dipasang?

B. What operating system are you using?
Apakah sistem operasi yang anda gunakan?

C. Does the monitor work?
Adakah monitor berfungsi?

D. Have you recently installed any new hardware or software?
Pernahkah anda memasang sebarang perkakasan atau perisian baru?

CLO2
C3

10. A network administrator is connecting three PC using a switch and straight-through cable as shown in the Figure A10. Ping attempts between the PC1 and PC3 are unsuccessful. What can be done to provide connectivity between the two hosts?

Seorang pentadbir rangkaian menghubungkan tiga PC menggunakan satu suis dan kabel 'straight-through' seperti dalam Rajah A10. Percubaan ping antara PC1 dan PC3 hos tidak berjaya. Apakah yang boleh dilakukan untuk membolehkan penyambungan di antara dua hos tersebut?

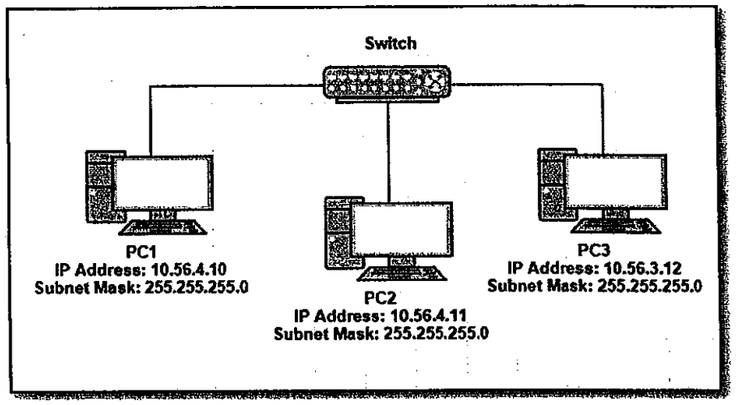

Figure A10 / *Rajah A10*

A. IP address on PC1 should be set to 10.56.4.12
Alamat IP pada PC1 hendaklah ditetapkan kepada 10.56.4.12

B. IP address on PC3 should be set to 10.56.4.12
Alamat IP pada PC3 hendaklah ditetapkan kepada 10.56.4.12

C. A default gateway needs to be set on each host
'Default gateway' perlu disetkan pada setiap hos

D. A crossover cable should be used in place of the straight-through cable
Kabel 'crossover' perlu digunakan bagi menggantikan kabel 'straight-through'

SECTION B: 60 MARKS

BAHAGIAN B: 60 MARKAH

INSTRUCTION:

This section consists of **FOUR (4)** structured questions. Answer **ALL** questions.

ARAHAN:

*Bahagian ini mengandungi **EMPAT (4)** soalan berstruktur. Jawab semua soalan.*

QUESTION 1

SOALAN 1

CLO1 C1

(a) State **THREE (3)** elements that exist within a computer network.
*Nyatakan **TIGA (3)** elemen yang terdapat dalam rangkaian computer.*

[3 marks]
[*3 markah*]

CLO1 C2

(b) Computer networking is widely used practice in today's world. It is the most essential ways of **communication** and **hardware sharing**. Explain briefly these advantages.
Rangkaian komputer digunakan secara meluas dalam dunia hari ini. Ini adalah cara yang penting dalam komunikasi dan perkongsian perkakasan. Terangkan dengan ringkas kelebihan ini.

[5 marks]
[*5 markah*]

CLO2 C3

(c) You undergo a practical training at ABC company. ABC company has a new project to build a network. This network project must consist of 9 computers with the minimum budget. As a practical student, you have been assigned with the project. Explain the type of network should you install?
Anda menjalani latihan praktikal di syarikat ABC. Syarikat ABC telah mendapat projek baru untuk membina sebuah rangkaian. Projek rangkaian ini mesti terdiri daripada 9 buah komputer dengan kos yang minima. Sebagai pelajar praktikal, anda telah ditugaskan dengan projek ini. Terangkan jenis rangkaian yang perlu anda pasangkan?

[7 marks]
[*7 markah*]

QUESTION 2

SOALAN 2

CLO1 C1

(a) What is the Media Access Control (MAC) address?
Apakah alamat Kawalan Akses Media (MAC)?

[3 marks]
[*3 markah*]

CLO1 C2

(b) Complete the Table B2(b) with the suitable answer.
Lengkapkan Jadual B2(b) dengan jawapan yang sesuai.

Table B2(b) / *Jadual B2(b)*

Class	Range of 1st Octet	Default Subnet mask	Example of IP address
A)	B)	255.255.0.0	129.0.0.1
C)	D)	E)	125.255.255.0

[5 marks]
[*5 markah*]

(c) Telekom Malaysia (TM) is one of the Internet Service Provider (ISP) in Malaysia. With the aid of diagram, explain how Telekom Malaysia (TM) supplied the internet to the customer.
Telekom Malaysia (TM) merupakan salah satu Pembekal Perkhidmatan Internet di Malaysia. Dengan bantuan gambarajah, terangkan bagaimana Telekom Malaysia (TM) membekalkan internet kepada pelanggan.

[7 marks]
[*7 markah*]

QUESTION 3
SOALAN 3

CLO1
C1

(a) State **THREE (3)** advantages of wireless technologies.
*Nyatakan **TIGA (3)** kelebihan teknologi tanpa wayar.*

[3 marks]
[*3 markah*]

CLO1
C3

(b) You got an email as in Figure B3(b) ask you to update your bank profile. By referring to the email, what is security threatening strategy used? Explain about this security threatening strategy.
Anda menerima emel seperti dalam Rajah B3(b) yang meminta anda untuk mengemaskini profil bank anda. Dengan merujuk kepada emel yang diterima, apakah strategi ancaman keselamatan yang digunakan? Terangkan berkenaan strategi ancaman keselamatan ini.

Message From CIMB Clicks

Hide Details
From

- CIMB Clicks

Dear Customer,

Greetings!

Your CIMB Bank profile will expire soon. For security reasons, you are required to validate your account login details.

CLICK HERE to validate your account and keep it safe.

Thank you & have a good day ahead!

Warm Regards
CIMB Clicks

Figure B3(b) / *Rajah B3(b)*

[5 marks]
[*5 markah*]

CLO1
C3

(c) There are **TWO (2)** types of network intrusion sources. Sketch a suitable diagram and explain it briefly to illustrate these sources.
*Terdapat **DUA (2)** jenis sumber pencerobohan rangkaian. Lakarkan gambarajah yang sesuai dan terangkan secara ringkas untuk menggambarkan sumber-sumber pencerobohan ini.*

[7 marks]
[*7 markah*]

QUESTION 4

SOALAN 4

CLO1 C2 (a) Differentiate between point to point transmission and broadcast transmission.
Bezakan antara penghantaran titik ke titik dan penghantaran siaran.

[3 marks]
[*3 markah*]

CLO1 C3 (b) Describe briefly the types of transmission media that may be used if the user needs to connect an analog TV to Digital Box (Astro). The types of transmission media used must support the transmission of video, communications, and audio.
Terangkan secara ringkas jenis media penghantaran yang mungkin digunakan jika pengguna perlu menyambung TV analog ke Kotak Digital (Astro). Jenis media penghantaran yang digunakan mesti menyokong penghantaran video, komunikasi, dan audio.

[5 marks]
[*5 markah*]

CLO2 C4 (c) Ragu communicates with his friend using Skype through his computer. During the conversation, data transmission has happened. Explain briefly with the aid of diagram of the signaling method and direction mode of the transmission involved in this scenario.
Ragu berkomunikasi dengan rakannya menggunakan Skype melalui komputernya. Semasa perbualan, penghantaran data telah berlaku. Terangkan secara ringkas dengan bantuan gambarajah kaedah isyarat dan mod arah penghantaran yang terlibat dalam senario ini.

[7 marks]
[*7 markah*]

SECTION C: 30 MARKS

BAHAGIAN C: 30 MARKAH

INSTRUCTION:

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

ARAHAN:

*Bahagian ini mengandungi **DUA (2)** soalan esei. Jawab **SEMUA** soalan.*

QUESTION 1

SOALAN 1

CLO1 C3 Networking/Transmission media is a pathway that carries the information from sender to receiver. There are two types of transmission media which is guided and unguided. Describe with the aid of a diagram, the suitable transmission media, including the features of throughput, noise immunity, cost, size and scalability according to the statement below.
Rangkaian /Media penghantaran adalah laluan yang membawa maklumat dari penghantar kepada penerima. Terdapat dua jenis media penghantaran iaitu terarah dan tidak terarah. Terangkan dengan bantuan gambarajah media penghantaran yang sesuai, termasuk ciri "throughput", imuniti hingar, kos, saiz dan skalabiliti mengikut kenyataan di bawah.

- Guided transmission media.
- Does not conduct electrical current to transmit signals.
- It is suited for long distance communication.
- Industry standard for high speed networking.
- Excellent security.

- *Media penghantaran terarah.*
- *Tidak menggunakan arus elektrik untuk menghantar isyarat.*
- *Ia sesuai untuk komunikasi jarak jauh.*
- *Standard industri untuk rangkaian berkelajuan tinggi.*
- *Keselamatan yang sangat baik.*

[15 marks]
[*15 markah*]

QUESTION 2

SOALAN 2

CLO2
C4

Analyze the given outputs figures of the command prompt in Figure C2(i), Figure C2(ii), Figure C2(iii), Figure C2(iv) and Figure C2(v). Determine the commands used in order to get the output, function of the commands, and the information that can be extracts from the outputs.

Analisa rajah-rajah yang menunjukkan hasil keluaran 'command prompt' dalam Rajah C2(i), Rajah C2(ii), Rajah C2(iii), Rajah C2(iv) dan Rajah C2(v). Tentukan arahan-arahan yang digunakan untuk mendapatkan keluaran tersebut, fungsi arahan-arahan tersebut, dan maklumat-maklumat yang boleh diperolehi daripada hasil keluaran tersebut.

```
Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : POLISAS.EDU.MY
   Link-local IPv6 Address . . . . . : fe80::9913:6050:b711:79d9%12
   IPv4 Address. . . . . . . . . . . : 10.56.3.82
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 10.56.3.1

Ethernet adapter Bluetooth Network Connection:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Tunnel adapter isatap.POLISAS.EDU.MY:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . : POLISAS.EDU.MY
```

Figure C2(i) / *Rajah C2(i)*


```
Reply from 172.217.27.227: bytes=32 time=36ms TTL=51
Reply from 172.217.27.227: bytes=32 time=60ms TTL=51
Reply from 172.217.27.227: bytes=32 time=78ms TTL=51
Reply from 172.217.27.227: bytes=32 time=62ms TTL=51
Reply from 172.217.27.227: bytes=32 time=68ms TTL=51
Reply from 172.217.27.227: bytes=32 time=71ms TTL=51
Reply from 172.217.27.227: bytes=32 time=50ms TTL=51
Reply from 172.217.27.227: bytes=32 time=39ms TTL=51
Reply from 172.217.27.227: bytes=32 time=60ms TTL=51
Reply from 172.217.27.227: bytes=32 time=53ms TTL=51
```

Figure C2(ii) / *Rajah C2(ii)*

```
 1    1 ms    1 ms    1 ms  10.56.3.1
 2    3 ms   14 ms   16 ms  192.168.12.26
 3   <1 ms   <1 ms   <1 ms  192.168.56.1
 4    1 ms   <1 ms   <1 ms  122.129.121.222
 5    1 ms    2 ms    1 ms  122.129.121.193
 6   22 ms   26 ms   22 ms  100.100.30.185
 7   16 ms   20 ms   18 ms  google.myix.gov.my [218.100.44.92]
 8   21 ms   22 ms   23 ms  google.myix.gov.my [218.100.44.92]
 9   16 ms   18 ms   21 ms  108.170.250.17
10   25 ms   32 ms   36 ms  108.170.226.83
11   28 ms   29 ms   33 ms  kul08s01-in-f3.1e100.net [172.217.24.163]
```

Figure C2(iii) / *Rajah C2(iii)*

```
Server:  polisassvrad01.polisas.edu.my
Address:  10.56.1.21

Non-authoritative answer:
Name:    www.google.com.my
Addresses:  2a00:1450:4014:800::2003
          172.217.27.35
```

Figure C2(iv) / *Rajah C2(iv)*

Proto	Local Address	Foreign Address	State
TCP	10.56.3.82:49685	111.221.29.83:443	ESTABLISHED
TCP	10.56.3.82:49771	111.221.29.84:443	ESTABLISHED
TCP	10.56.3.82:49854	74.125.130.109:993	ESTABLISHED
TCP	10.56.3.82:49925	23.58.230.106:443	CLOSE_WAIT
TCP	10.56.3.82:49926	23.58.228.180:443	CLOSE_WAIT
TCP	10.56.3.82:49927	23.58.230.106:443	CLOSE_WAIT
TCP	10.56.3.82:49928	23.58.230.106:443	CLOSE_WAIT
TCP	10.56.3.82:49929	23.58.230.106:443	CLOSE_WAIT
TCP	10.56.3.82:49949	10.56.3.101:50000	ESTABLISHED
TCP	10.56.3.82:49975	10.56.3.74:50000	ESTABLISHED
TCP	10.56.3.82:49996	10.56.3.73:50000	ESTABLISHED
TCP	10.56.3.82:50000	10.56.3.21:49593	ESTABLISHED
TCP	10.56.3.82:50000	10.56.3.21:49594	ESTABLISHED
TCP	10.56.3.82:50000	10.56.3.29:49436	ESTABLISHED
TCP	10.56.3.82:50000	10.56.3.29:49437	ESTABLISHED
TCP	10.56.3.82:50000	10.56.3.30:49885	ESTABLISHED
TCP	10.56.3.82:50000	10.56.3.30:58315	ESTABLISHED
TCP	10.56.3.82:50000	10.56.3.30:58316	ESTABLISHED
TCP	10.56.3.82:50000	10.56.3.33:57042	ESTABLISHED
TCP	10.56.3.82:50000	10.56.3.33:57043	ESTABLISHED
TCP	10.56.3.82:50000	10.56.3.37:50815	ESTABLISHED
TCP	10.56.3.82:50000	10.56.3.37:50816	ESTABLISHED
TCP	10.56.3.82:50000	10.56.3.41:62872	ESTABLISHED
TCP	10.56.3.82:50000	10.56.3.41:62873	ESTABLISHED
TCP	10.56.3.82:50000	10.56.3.44:64024	ESTABLISHED
TCP	10.56.3.82:50000	10.56.3.44:64025	ESTABLISHED
TCP	10.56.3.82:50000	10.56.3.45:62018	ESTABLISHED

Figure C2(v) / *Rajah C2(v)*

[15 marks]

[*15 markah*]

SOALAN TAMAT