

SULIT



BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENGAJIAN POLITEKNIK
KEMENTERIAN PENDIDIKAN MALAYSIA

JABATAN KEJURUTERAAN ELEKTRIK

PEPERIKSAAN AKHIR
SESI DISEMBER 2013

EP601: DATA COMMUNICATION

TARIKH : 17 APRIL 2014
TEMPOH : 8.30AM – 10.30AM (2 JAM)

Kertas ini mengandungi LAPAN (8) halaman bercetak.

Bahagian A: Struktur (10 soalan)

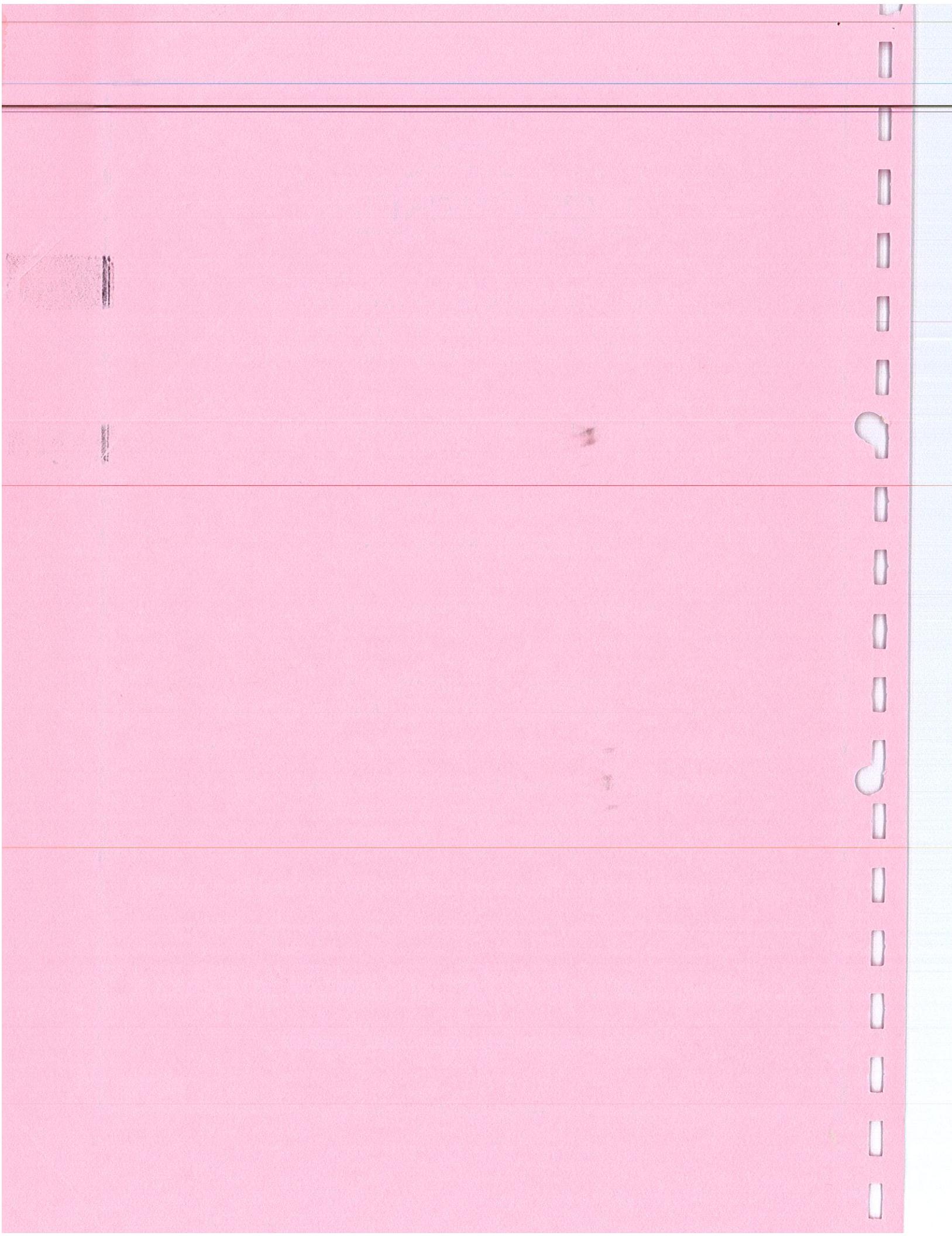
Bahagian B: Esei (3 soalan)

Dokumen sokongan yang disertakan : LAMPIRAN 1 (Jadual Kod ASCII)

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT



SECTION A : 40 MARKS
BAHAGIAN A : 40 MARKAH

INSTRUCTION:

This section consists of **TEN (10)** structured questions. Answer **ALL** questions.

ARAHAN:

Bahagian ini mengandungi **SEPULUH (10)** soalan berstruktur. Jawab semua soalan.

CLO1
C2

QUESTION 1

Data Terminal equipment (DTE) and Data Circuit-Terminal Equipment (DCE) are interfaces between computer and MODEM. Compare between DTE and DCE.

SOALAN 1

“Data Terminal equipment (DTE)” and “Data Circuit-Terminal Equipment” (DCE) adalah antaramuka di antara komputer dan MODEM. Bandingkan antara DTE dan DCE.

[4 marks]
[4 markah]

CLO1
C2

QUESTION 2

There are **THREE (3)** types of error in error coding which are single-bit error, multi-bit error and burst error. Briefly explain about burst error using suitable aid of diagram.

SOALAN 2

Terdapat **TIGA (3)** jenis kesilapan dalam pengekodan iaitu kesilapan bit-tunggal, kesilapan multi-bit dan kesilapan pecah. Terangkan secara ringkas tentang kesilapan pecah dengan bantuan gambarajah yang sesuai.

[4 marks]
[4 markah]

CLO1
C2

QUESTION 3

Explain **TWO (2)** importance's of MODEM in data communication.

SOALAN 3

Jelaskan **DUA (2)** kepentingan MODEM di dalam komunikasi data.

[4 marks]
[4 markah]

CLO2
C2

QUESTION 4

With the aid of a suitable diagram, explain the Time Division Multiplexer (TDM).

SOALAN 4

Dengan bantuan gambarajah yang sesuai, terangkan Pembahagian Masa Pemultiplek (TDM)

[4 marks]
[4 markah]

CLO2
C2

QUESTION 5

Determine a compress data using Run Length Encoding for original data given below

- i. BBBBBBBBBBAAAAAAAAAAAAAANMMMMMM
- ii. 0000000000000001000011000000000000

SOALAN 5

Dapatkan data yang dimampatkan menggunakan Kaedah Run Length Encoding untuk data asal yang diberikan dibawah

- i. BBBBBBBBBBAAAAAAAAAAAAAANMMMMMM
- ii. 0000000000000001000011000000000000

[4 marks]
[4 markah]

CLO2
C2

QUESTION 6

There are **TWO (2)** types of network topologies: Logical Topology and Physical Topology.
Differentiate between these two topologies.

SOALAN 6

Terdapat **DUA (2)** jenis rangkaian topologi: Topologi Logical dan Topologi Fizikal.
Bandingkan kedua-dua topologi tersebut.

[4 marks]
[4 markah]

CLO2

C2

QUESTION 7

Explain TWO (2) concepts of Carrier Sense Multiple Access/Collision Avoidance

(CSMA/CA).

SOALAN 7

Terangkan DUA (2) konsep Pengesan Pembawa Pelbagai Capaian /Pencegah Perlanggaran (CSMA/CA).

[4 marks]
[4 markah]

CLO2

C2

QUESTION 8

Describes any TWO (2) ISDN channels.

SOALAN 8

Perihalkan mana – mana DUA (2) saluran ISDN.

[4 marks]
[4 markah]

CLO2

C2

QUESTION 9

Locate the following interfaces ‘TA’, ‘NT1’, ‘NT2’ and ‘TE’ onto the correct block (A-D) in Figure A9:

SOALAN 9

Tentukan kedudukan bagi antaramuka ‘TA’, ‘NT1’, ‘NT2’ dan ‘TE’ bagi blok (A-D) dalam gambarajah A9:

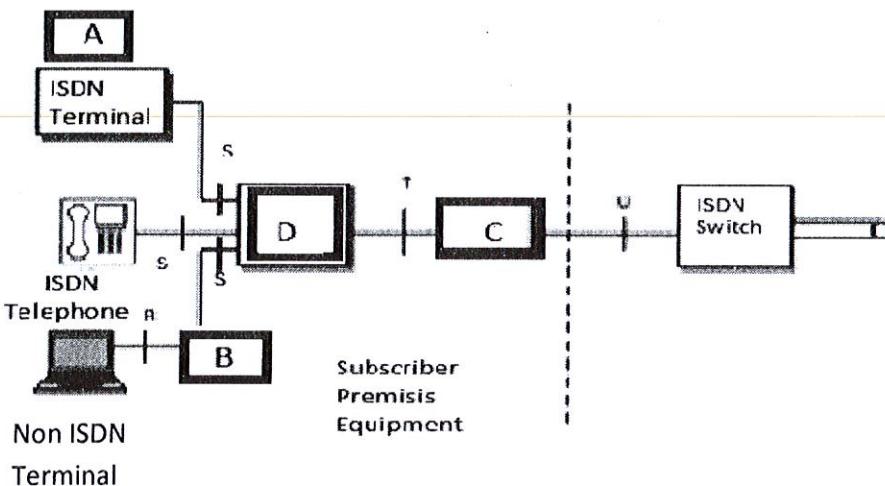


Figure A9/Gambarajah A9

[4 marks]
[4 markah]

CLO2

QUESTION 10

C2

Rewrite label A, B, C and D with a correct field name for IPV4 packet headers in figure A10.

SOALAN 10

Tulis semula label A, B,C dan D untuk IPV4 ‘packet headers’ dengan label yang betul dalam gambarajah A10.

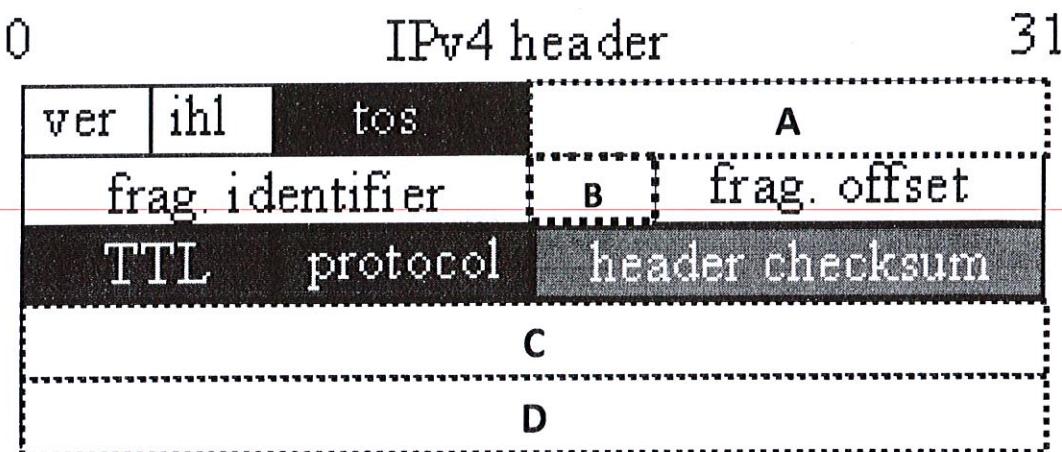


Figure A10/ Gambarajah A10

[4 marks]
[4 markah]

SECTION B : 60 MARKS
BAHAGIAN B : 60 MARKAH

INSTRUCTION:

This section consists of THREE (3) essay questions. Answer **ALL** questions.

ARAHAN:

Bahagian ini mengandungi **TIGA (3)** soalan esei. Jawab semua soalan.

QUESTION 1

SOALAN 1

CLO1

C1

- a) There are many types of error controls to prove they are no error during the transmission of data at the transmitting and receiving such as parity error.

Terdapat beberapa jenis ralat kawalan yang digunakan untuk menentukan bahawa tiada ralat berlaku semasa proses penghantaran data di penghantar dan penerima seperti “parity error”

- i) Define a parity bit

Definasi bit parity

[2 marks]
[2 markah]

CLO1

C2

- ii) By referring to Appendix 1: ASCII code table, convert the characters in Table 1 to ASCII code using even parity and odd parity.

Dengan merujuk kepada Appendix 1: Jadual kod ASCII, aksara di dalam Jadual 1 kepada Kod ASCII untuk pariti genap dan pariti ganjil.

Table1/Jadual 1

Character	ASCII code	Even parity	Odd parity
CAN			
i			
&			

[9 marks]
[9 markah]

CLO1 b) Draw and state the function for every block of a MODEM.

C2 *Lukis dan nyatakan fungsi bagi setiap blok sebuah MODEM*

[9 marks]
[9 markah]

QUESTION 2

SOALAN 2

CLO2 a) Explain Caesar Cipher technique for encryption and decryption.

C2 *Terangkan teknik Caesar Cipher untuk penyulitan dan dinyahsulit.*

[6 marks]
[6 markah]

CLO2 b) With an aid of suitable diagram, explain the Carrier Sense Multiple Access/ Collision

C2 Detection (CSMA/CD).

Derigan bantuan gambarajah, terangkan 'Carrier Sense Multiple Access/ Collision Detection (CSMA/CD).

[14 marks]
[14 markah]

QUESTION 3

SOALAN 3

a) Explain the following terms:

- CLO1 i. Data Network
C2 ii. Value Added Network (VAN)

Jelaskan terma berikut:

- i. Rangkaian Data
ii. Value Added Network (VAN)

[6 marks]
[6 markah]

CLO2
C2

- b) The Public circuit switched network has a normal telephone service is based on a circuit-switching technology, in which a dedicated line is allocated for transmission between two parties.

Rangkaian Litar Pensuisan Awam untuk perkhidmatan telefon adalah berdasarkan teknologi litar pensuisan dimana melibatkan penghantaran melibatkan dua pihak.

- i. By using suitable diagram, state the function for each block of Public Circuit Switched Network.

Dengan menggunakan gambarajah yang sesuai. nyatakan fungsi setiap blok dalam Rangkaian Litar Pensuisan Awam.

[6 marks]
[6 markah]

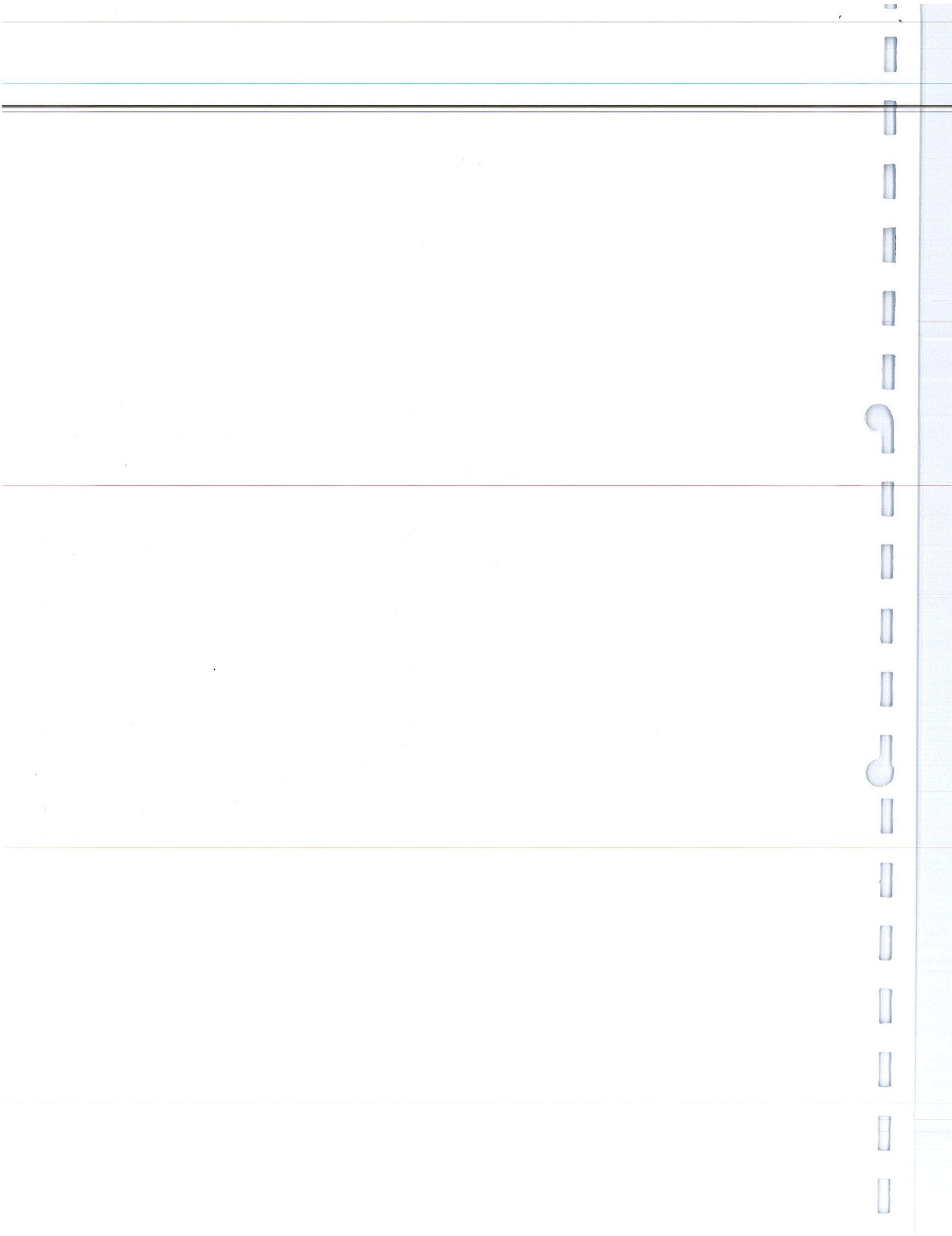
CLO2
C2

- ii. Compare **FOUR (4)** different types of Circuit Switching and Packet Switching based on their characteristics.

*Bandingkan **EMPAT (4)** perbezaan litar pensuisan dan pensuisan paket berdasarkan ciri-ciri pensuisan tersebut.*

[8 marks]
[8 markah]

SOALAN TAMAT



ASCII CODE TABLE

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	0	0	0	0	1	1	1	1
P	0	0	0	0	NUL	DLE	SP	0	@	P	\	p		
	0	0	0	1	SOH	DC1	!	1	A	Q	a	q		
	0	0	1	0	STX	DC2	"	2	B	R	b	r		
	0	0	1	1	ETX	DC3	#	3	C	S	c	s		
	0	1	0	0	EOT	DC4	\$	4	D	T	d	t		
	0	1	0	1	ENQ	NAK	%	5	E	U	e	u		
	0	1	1	0	ACK	SYN	&	6	F	V	f	v		
	0	1	1	1	BEL	ETB	'	7	G	W	g	w		
	1	0	0	0	BS	CAN	(	8	H	X	h	x		
	1	0	0	1	HT	EM	)	9	I	Y	i	y		
	1	0	1	0	LF	SUB	*	:	J	Z	j	z		
	1	0	1	1	VT	ESC	+	;	K	[	k	l		
	1	1	0	0	FF	FS	,	<	L	\	l	:		
	1	1	0	1	CR	GS	-	=	M	]	m	;		
	1	1	1	0	SO	RS	.	>	N	^	n	~		
	1	1	1	1	SI	US	/	?	O	-	o	DEL		

