



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Sekolah Pendidikan Profesional dan
Pendidikan Berterusan
(UTMSPACE)

3

**FINAL EXAMINATION / PEPERIKSAAN AKHIR
SEMESTER 2 – SESSION 2015 / 2016
PROGRAM KERJASAMA**

COURSE CODE : DDPC 2673
KOD KURSUS

COURSE NAME : DATA COMMUNICATION AND NETWORKING /
NAMA KURSUS KOMUNIKASI DATA DAN RANGKAIAN

YEAR / PROGRAMME : 2 DDPC / 2 DDPZ
TAHUN / PROGRAM

DURATION : 2 HOURS 30 MINUTES / 2 JAM 30 MINIT
TEMPOH

DATE : APRIL 2016
TARIKH

INSTRUCTION/ARAHAN :

- ANSWER ALL QUESTIONS.
JAWAB SEMUA SOALAN.

(You are required to write your name and your lecturer's name on your answer script)
(Pelajar dikehendaki tuliskan nama dan nama pensyarah pada skrip jawapan)

NAME / NAMA	:
I.C NO. / NO. K/PENGENALAN	:
YEAR / COURSE TAHUN / KURSUS	:
COLLEGE NAME NAMA KOLEJ	:
LECTURER'S NAME NAMA PENSYARAH	:

This examination paper consists of ...12... pages including the cover
Kertas soalan ini mengandungi 12..... muka surat termasuk kulit hadapan

SECTION A: SUBJECTIVE [100 MARKS]
BAHAGIAN A: SUBJEKTIF [100 MARKAH]

INSTRUCTION : Answer all questions in the space provided.

Arahan : Jawab semua soalan pada ruang yang disediakan.

1. List two(2) advantages and disadvantages of twisted pair cable, coaxial cable and fiber optical cable. **[12m]**

Senaraikan dua(2) kebaikan dan keburukan kabel terpiuh, kabel sepaksi dan kabel fiber optik.

	Advantages/Kebalkan	Disadvantages/Keburukan
Fiber-Optic/ fiber optik		
Coaxial Cable/Kabel Sepaksi		
Twisted- Pair/ Kabel Terpiuh		

2. What is the significance of twisting in twisted pair cable?

[4m]

Apakah signifikan memintal kabel terpiuh?

3. Briefly explain of Kepler's laws and orbital aspect.

[4m]

Terangkan secara ringkas undang-undang Kepler dan aspek orbit.

4. Write the merits and demerits of following topology:

[16m]

Tulis kelebihan dan kekurangan topologi berikut:

	Merits/kelebihan	Demerits/kekurangan
a. Bus topology/ <i>Topologi Bas</i>		

b. Ring topology/ <i>Topologi Cincin</i>		
c. Star topology/ <i>Topologi Bintang</i>		
d. Mesh topology/ <i>Topologi Mesh</i>		

5. State and briefly explain three(3) types of Bridge. [6m]
Nyatakan dan terangkan secara ringkas tiga(3) jenis Jambatan.

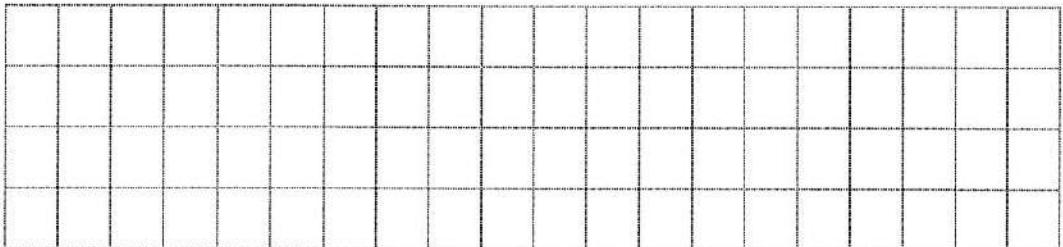
6. Explain three(3) phases in a virtual circuit [6m]
Terangkan tiga(3) fasa dalam litar maya.

7. Consider a binary sequence 1011111100 flow through a channel. For each method below, draw the wave of the digital to digital conversion.

Pertimbangkan jujukan binari 1011111100 melalui satu saluran. Bagi setiap kaedah di bawah, lukis gelombang pertukaran digital ke digital.

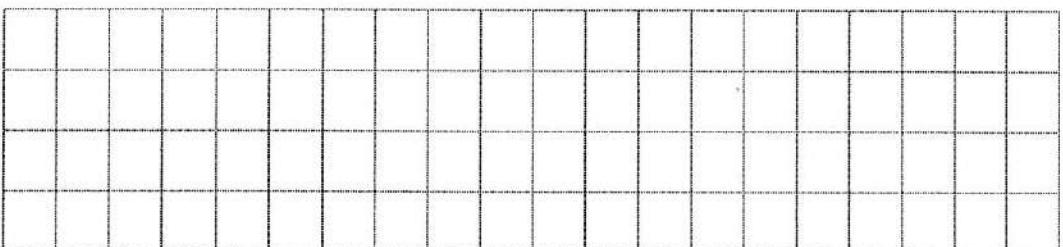
a) RZ

[3m]



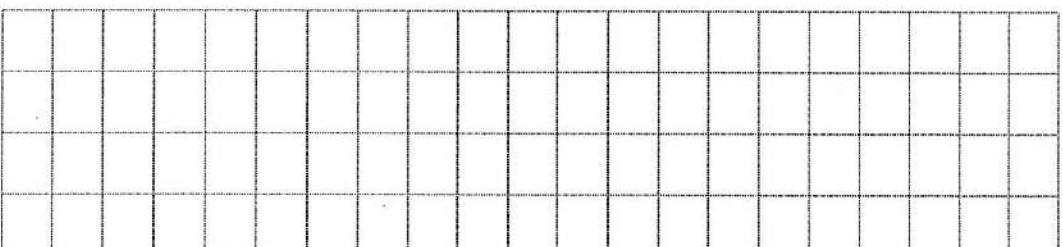
b) NRZ_I

[3m]



c) Manchester

[3m]



8. Two nodes A and B are using sliding window **Selective Repeat ARQ** protocol with 3-bit frame field and window size is 6. Assuming nod A is a sender and nod B is a receiver, draw the position window for nod A and nod B for each activities below. Activities (a) through (d) are interrelated.

*Dua nod A dan B menggunakan protokol **ARQ Ulangan Memilih** dengan 3 bit medan kerangka dan saiz tetingkap adalah 6. Andaikan nod A adalah penghantar dan nod B adalah penerima,*

Lukiskan posisi tetengkap bagi nod A dan nod B untuk setiap aktiviti di bawah. Aktiviti (a) sehingga (d) adalah berkaitan.

- a) Frame 0 is sent, Frame 0 is acknowledged. [2m]

Kerangka 0 dihantar, Kerangka 0 di perakukan

- b) Frames 1 and 2 are sent; Frames 1 and 2 are acknowledged. [3m]

Kerangka 1 dan 2 dihantar; Kerangka 1 dan 2 diperakukan.

- c) Frames 3,4, and 5 are sent; Frames 3 and 4 is acknowledged; Timer for Frame 5 expires.

[3m]

Kerangka 3,4 dan 5 dihantar, Kerangka 3 dan 4 diperakukan, Masa untuk Kerangka 5 tamat tempoh.

- d) Frame 5,6 and 7 are sent; Frames 5 through 7 are acknowledged. [3m]

Kerangka 5,6 dan 7 dihantar, Kerangka 5 hingga 7 diperakukan.

9. Answer the following question based on error detection and correction.

Jawab soalan di bawah berdasarkan kaedah pengesan dan pembetulan ralat.

- a) Construct Hamming Code for the bit sequence 1011111101. Show how the sender and receiver did. [6m]

Hasilkan kod Hamming bagi jujukan bit 1011111101. Tunjukkan bagaimana penghantar dan penerima melakukannya.

- b) Given the dataword 110011100100111 and the divisor 10011. Show the generation of the codeword at the sender site and show the checking at the codeword at the receiver site.

[6m]

Diberi perkataan data 110011100100111 dan pembahagi 10011. Tunjukkan bagaimana penjanaan perkataan data pada bahagian penghantar dan tunjukkan bagaimana penyemakan perkataan data pada bahagian penerima.

10. Given the number of needed subnets is 14, the number of needed usable host is 14 and the network address is 192.10.10.0. Answer the following questions.

Diberi bilangan subnet yang diperlukan adalah 14, bilangan hos yang diperlukan adalah 14 dan alamat rangkaian adalah 192.10.10.0. Jawab soalan berikut:

- a) What is the address class?

[2M]

Apakah alamat kelas?

- b) What is the default subnet mask?

[2M]

Apakah topeng subnet lalai?

- c) What is the custom subnet mask?

[2M]

Apakah topeng subnet custom?

- d) Calculate number of bits borrowed.

[2M]

Kira bilangan bit yang dipinjam.

- e) Calculate total number of host addresses.

[2M]

Kira jumlah bilangan alamat hos.

- f) Calculate number of usable addresses. [2M]

Kira bilangan alamat yang boleh digunakan.

- g) Calculate total number of subnets. [2M]

Kira jumlah bilangan subnet.

- h) Calculate the 4th subnet range. [2M]

Kira julat subnet ke 4.

- i) Calculate the subnet number for the 8th subnet. [2M]

Kira bilangan subnet bagi subnet ke 8.

- j) What is the subnet broadcast address for the 13th subnet? [2M]

Apakah alamat penyiaran subnet bagi subnet ke 13?

END OF QUESTIONS