UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2011/2012

COURSE NAME	:	NETWORK FUNDAMENTAL
COURSE CODE	:	DAT 21203
PROGRAMME	:	2 DAT
EXAMINATION DATE	:	MARCH 2012
DURATION	:	2 ½ HOURS
INSTRUCTION	:	ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF FOUR (4) PAGES

Q1 (a) Explain the differences between intranet and internet networking.

(2 marks)

(b) Illustrate the OSI layer reference model.

(2 marks)

(c) Explain the functionality of the first **THREE (3)** bottom layers of the OSI reference model.

(6 marks)

(d) An elementary school of your area proposing a new computer laboratory and are required to interconnect the computers into a local area network. You have been assigned to consult the school for their laboratory networks. You are required to study their proposal and will present them the network designs. The following information has been given for the networks:

        20 Personal computers
        1 File server
        1 web server
        1 router
        2 switches (with 24 ports)
        Class C address configurations

    (i) Illustrate and explain the proposed topology designs.

(4 marks)

    (ii) Show the IP assigned for the network. Use office IP addressing assignment. Note that all nodes should receive broadcasts signal.

(6 marks)

Q2 (a) Define simplex and half-duplex transmission mode.

(4 marks)

(b) List **TWO (2)** example of the parallel mode transmission and **TWO (2)** for the serial mode transmission.

(4 marks)

(d) State **TWO (2)** of ATM and x.25 technologies.

(4 marks)

(e) State **TWO (2)** differences between LAN and WAN.

(4 marks)

(f) Describe the operation of a bridge internetworking device in OSI model.

(4 marks)

Q3 (a) State **TWO (3)** reasons why TCP/IP protocol is better than UDP.

(4 marks)

(b) PPP protocol requires authentication process before a remote host adapted into a network. Show how this authentication process happening and Illustrate a diagram for your explanation.

(6 marks)

(c) Explain the differences between **connection-oriented** and **connectionless** oriented transmission.

(2 marks)

(d) Illustrate TCP/IP reference model and explain each layers.

(8 marks)

Q4 (a) Illustrate a topology diagram for the following networks and discuss each of them.

   (i)   Star
   (ii) Bus
   (iii) Mesh
   (iv) Ring
   (v)   Mesh

(10 marks)

(b) State the **advantages** and **disadvantages** of the Star, Bus and Ring topology.

(6 marks)

(c) State **TWO** advantages of the IPV4 over the IPV6.

(4 marks)

Q5 Given an IP address range of a host in a LAN as **10.8.125.21** to **10.8.125.21 50** and the subnet mask as **255.255.255.0.**

(a) Identify the number of byte used for the host and the network portion of the address. Illustrate the IP portion diagram to show your answer. Use the first IP from the network as an IP for this case.

(8 marks)

(b) Identify the classes of the host IP address.

(2 marks)

(c) Identify the netmask if the IP range from **10.8.125.41** to **10.8.125.50** are to be separated into different segments.

(5 marks)

(d) If any host in the earlier netmask were trying to access hosts in the new segment in Q5(c); will the access be successfully granted? State the reason for your answer.

(5 marks)