

THE OPEN UNIVERSITY OF SRI LANKA
B.Sc DEGREE PROGRAM: LEVEL 03
CLOSED BOOK TEST - 1: 2009
CPU 1140: FUNDAMENTALS OF COMPUTERS
DURATION: ONE AND HALF HOURS (1 ½ HOURS)



Reg. No:

Date: 28th September, 2009

Time: 4.00 pm – 5.30 pm

There are 5 structured questions.
Answer should be provided in the given spaces.
Answer ALL questions.
Each question carries equal marks.

Q1).

i. Briefly describe the following characteristics of computer.

a. Reliability and Accuracy

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b. Automation

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c. Diligence

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- ii. Some characteristics of the computer are recognized as limitation or drawback of the computer technology. What are those? Describe one of them them.

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Q2).

A cargo company called *P&O* plan to expand their services through the country. The company management decided to divide the country in to regions (FIG 01). Each region has a main office called *Regional Center*. These *Regional Centers* controls smaller offices within the region called *Branches*. Each *Regional Center* is connected to a centralized location called *Head Office*.

Branches are responsible for collecting cargo data such as Cargo type, Amount, Destination, Duration and Finance data like charges, fine etc. The *Branches* are connected to the *Regional Center* using a local area network. The *Regional Center* is responsible for collecting all the data from branches, storing and process them to identify cargo according to cargo type, Duration, Destination, etc to facilitate the cargo process.

After receiving these data, *Head Office* manages the whole cargo process from collecting cargo and distributing the cargo to *Regional Centers*. Other than that internal tasks as salary management leave management, promotion scheme management, marketing etc. also controlled by the *Head Office*.

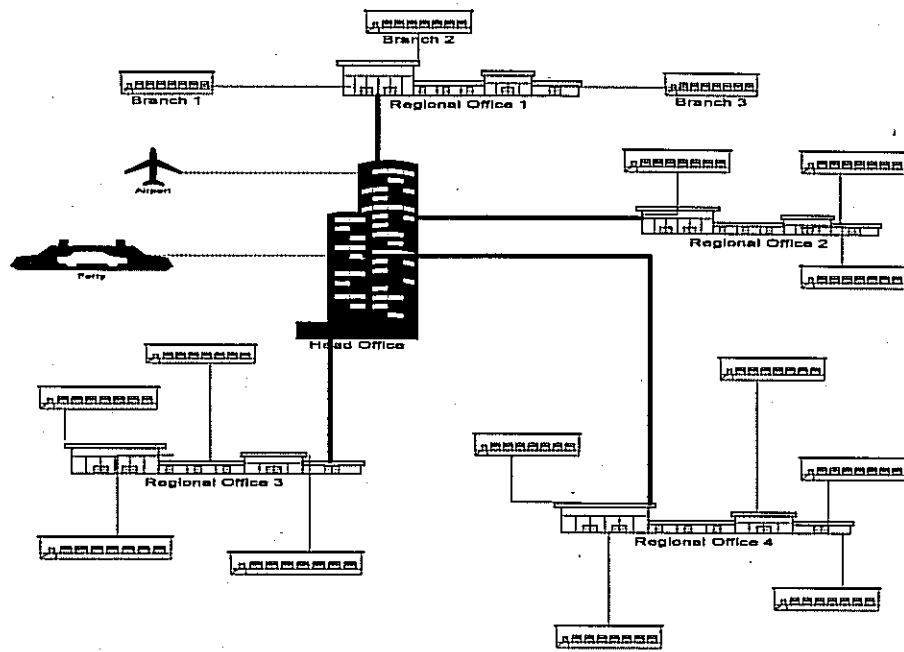


FIG 01: The *P&O* Organizational Structure

- i. As the IT Manager of *P&O* which categories of computers you propose to satisfy the requirements of each office? Justify your answer with more than 3 characteristics for each.

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- ii. By the time *P&O* will grow with the amount of business they have to handle, to cater that need they have to increase the number of employees. If so, as the IT manager, propose a machine which can increase the performance of the existing system at the *Head Office*. Justify your answer.

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- iii. As the part of their expansion plan, the management suggests to provide their services to the customers by sending their employees to customer's doorstep. What are the types of PCs you can propose to serve the above purpose?

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Q3).

- i. What is the functionality of BIOS program correspond to memory?

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- ii. Define the significance of *random* with respect to RAM?

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- iii. RAM is a type of computer data storage. Why it is called as a *volatile* memory?

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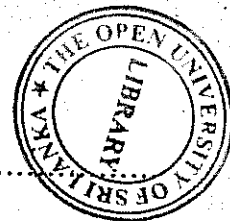
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- iv. Identify 2 types of RAMs and briefly describe them? (minimum 2 points for each)

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- v. Why memory designers needed memory modules in contrast of DIP chips?

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- vi. Describe the statement "*The average latency of memory access will be closer to the cache latency than to the latency of main memory which most memory accesses are to cache memory locations*".

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- vii. "*EPROM and flash EEROM which can be erased and reprogrammed multiple times, but they are still described as **Read-Only memory***". Give reasons for this statement.

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- viii. Compare RAM and ROM by giving at least 2 points.

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Q4).

- i. When a read/write command is received by the disk controller, the controller positions the arm assembly. Describe;

a. Seek time (T_s)

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b. Maximum Seek time

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c. Minimum Seek time

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d. Average Seek time

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- ii. In a Hard Disk Drive;

Disk rotating speed = 3600 rpm

One track contains 50 sectors

Number of bytes in a sector = 512 bytes

a. Find latency time (T_l)

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b. Calculate transfer rate (in MB per second)

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c. Time to read information

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d. Average time to access a sector

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iii. Other than moving the head to the correct sector for read-write and initiating read-write, name one responsibility of disk drive.

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Q5).

i. What is the reason for having different keyboard layouts?

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ii. Keys on older IBM keyboards were made with a "*Buckling Spring Mechanism*". Keys on most modern keyboards are made with "*Dome Switch Mechanism*"

a. Briefly describe the functionality of "*Buckling Spring Mechanism*"

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b. What is the difference between both mechanisms?

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iii. What are the advantages of optical mouse over mechanical mouse?

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iv. What is meant by

a. CPI:

b. DPI:
