SOLUTION 1

On – line, in Information Technology, means activated and ready for operation; capable of communication with or being controlled by a computer.

In on-line processing, the captured data are processed immediately. Data may be captured on PCs and workstations to take advantage of their ability to perform some of the data validation and editing before they get into the server computers.

The controls to be applied are similar to those for real-time processing.

For example, a printer is on-line when it can be used for printing; a database is on-line when it can be used by a person who connects with the computer on which it is stored.

On the other hand, off- line is the state in which a device cannot communicate with or be controlled by a computer. Although a device is offline when it is disconnected or turned off, the term is not necessarily synonymous with being either physically disconnected or shut down.

A printer, for example, can be off-line (temporarily disengaged), yet still be turned on and connected to the computer by a printer cable.

SOLUTION 2

A master file is a data file containing relatively permanent records (master records) that are generally updated periodically. A master file contains essential system data that are retained permanently within the system and processed within operational cycles. The two types of mater file are reference file which contains records that are unlikely to change frequently, and dynamic file which contains records that are continually changing as a result business transactions. Examples of these are, respectively, a price list and a bank customer file.

A transaction file contains records that related to individual transactions occurring on routine (eg. daily) basis. An example is a file for customer transactions in a bank.

The transaction records are used to bring the master file records they relate to the current status.

SOLUTION 3

In real – time processing, data representing transactions are entered and processed as they occur and the relevant master files are updated. Because there is not much time between when the data are input and when they are processed, there is the need to ensure that errors in input data are identified and corrected before processing occurs.

This calls for the application of rigid data validation techniques.

Examples of real – time processing include airline seat reservation, bank automated teller machine (ATM) operations, and library systems.

On the other hand, in batch processing data about many transactions are collected as a single file which is then processed. In batch processing, the entered data are collected into files called batches and each file is processed as a batch of many transactions.

In batch systems, data about each batch, made up of batch number, number of documents, control totals, hash totals and meaningful totals, should be recorded on a batch control slip.

Examples of batch processing applications include payroll, utility services billing systems, bank customers' account processing and balancing after a day's operations

SOLUTION 4

(a) HCI means Human Computer Interface- This represents the communication methods between computer and human Users. The types of HCI are Command Driven, Menu Driven and Graphical User Interface (GUI)

(b) A user friendly system displays format that enables the user to choose commands, start programs, and see lists of files and other options by pointing to pictorial representations (icons) and lists of menu items on the screen. Choices can generally be activated either with the keyboard or with a mouse. GUIs were inspired from the pioneering research of computer scientist at the Xerox Corporation's Palo Alto Research Center in the 1970s. Modern GUI are used on the Macintosh operating system, Microsoft Windows, and the OS/2 Presentation Manager. For application developers, GUI offer an environment that processes the direct interaction with the application without worrying about the details of screen display, mouse control, or keyboard input. It also provides programmers standard controlling mechanisms for frequently repeated tasks such as opening windows and dialog boxes. Another benefit is that applications written for a GUI are device independent. As the interface changes to support new input and output devices such as a large screen monitor or an optical storage device, the application can, without modification, use those devices. The Systems are simple to understand and are easy to operate.

SOLUTION 5

a) Office Automation is the use of electronic devices to perform tasks that were previously done using manual means in the office or workplace.

Although some purely mechanical devices remain in use, the newest models of many machines contain electronic components. These devices include mail- handling equipment

(postage meters, scales, letter- opening machines, folding and inserting machines); automatic addressing equipment; audio paging systems; paper cutters, binders, and staplers, time recording machines: and coin- sorting , counting, wrapping and related money-handling equipment.

b) 1. Increased Productivity- will lead to increased production of goods and services provided by firms.

2. Better uses of Human resources- will relieve working of boring and repetitive activities (eg. Calculations and other routine tasks)

3. Higher Profits- Higher efficiency, leading to increased profits.
4. Simplification of work procedures- Automation will result in difficult aspects of the office work being easier and simpler to handle.

5. Increased employee motivation arising from job enrichment

SOLUTION 6

a) Computer Aided Systems (or Software) Engineering (CASE) tools are automated software tools that support the drawing and analysis of system models and associated specifications. Some CASE tools also provide prototyping and code generation capabilities. CASE tools are made up components that include:

i) Diagramming Tools – used to draw the system models required

ii) Dictionary tools – used to record , delete, edit, and output detailed documentation and specifications

iii) Design tools – used to develop system prototypes.

iv) Documentation tools – required for project and system documentation

v) Design and code generator tools – automatically generate database designs and application programs

b) Benefits of CASE tools include:

• Speeding up the development process.

• Standardizing the development process.

- Ensuring a high quality of development models

- Improvement in the quality of the system.

- Improving and standardizing the documentation of the system.

- Making maintenance of the system easier.

SOLUTION 7

(a)   The Internet is a network of networks; a series of networks using very precise rules that allow any user to connect to, and use available network or computer connected to it.

(b)   Capabilities of the internet include:

- Dissemination of information.

- Product/ Service development.

- Electronic commerce (e – commerce) involving business to business (B2B), business to consumer (B2C), and consumer to consumer (C2C)

- Relationship enhancement.

- Recruitment and Job Search.

- Electronic Mail.

- Electronic Banking.