**DATA PROCESSING SS 3**

**SECOND TERM**

**SCHEME OF WORK**

**WEEK TOPIC**

1. REVISION (1STTERM SS3)

2. PARALLEL AND DISTRIBUTED DATABASE

3. PARALLEL AND DISTRIBUTED DATABASE

4. NETWORKING

5. NETWORKING

6 COMPUTER VIRUS

7. COMPUTER VIRUS

8. CAREER OPTIOND IN DATA PROCESSING

9. CAREER OPTIONS IN DATA PROCESSING

10. REVISION

11. EXAMINATION

**REFERENCE TEXTBOOK:**

* UNDERSTSNDING DATA PROCESSING FOR SECONDARY SCHOOLS:BY DINEHIN VICTORIA

**WEEK ONE**

**REVISION SS3 1ST TERM**

**TOPIC: CRASH RECOVERY**

**Definition**

Crash recovery is the process of restoring a database to a consistent and usable state following a system crash. This involves rolling back incomplete transactions and completing committed transactions that were still in memory at the time of the crash. It culminates in achieving a point of consistency within the database.

Conditions Leading to Transaction Failure

Several conditions can result in transaction failure, including:

1. Power failures that cause the database manager and its partitions to shut down.

2. Hardware failures such as memory corruption, disk, CPU, or network failures.

3. Serious operating system errors that lead to a database crash.

Introduction to ARIES (Algorithms for Recovery and Isolation Exploiting Semantics)

ARIES is a recovery algorithm designed to work with the no-force, steal database approach and is used by prominent database systems like IBM DB2 and MS SQL Server.

Principles of ARIES Recovery Algorithm

The ARIES recovery algorithm is based on three fundamental principles:

1. Write Ahead Logging: Changes to a database object are logged before the actual data modifications. The log must be stored in stable storage before the changes are written to disk.

2. Repeating History during Redo: After a crash, ARIES retraces the database's actions before the crash, restoring the system to its exact pre-crash state. Then, it undoes any transactions that were active at the time of the crash.

3. Logging Changes during Undo: Changes made to the database during the undo process are logged to prevent repetition in the event of multiple restarts.

Recovery Procedure after a Crash

The recovery process comprises three phases:

1. Analysis Phase: In the first phase, analysis computes essential information from the log file.

2. REDO Phase: The Redo phase restores the database to the state at the time of the crash, including all changes from uncommitted transactions.

3. UNDO Phase: The undo phase undoes uncommitted changes, ensuring the database attains a consistent state. After the redo phase, the database reflects the pre-crash state, but uncommitted changes need to be undone for consistency.

Recovery Related to Data Structure

The Write-Ahead Log Protocol

Write Ahead Logging (WAL) techniques provide atomicity and durability in database systems. In WAL systems, all changes are logged before they are applied, and both redo and undo information is stored in the log. This approach allows all database updates to be performed in one place.

Atomicity and Durability

- Atomicity ensures that either all operations within a transaction are executed or none of them are (all-or-nothing).

- Durability guarantees that committed transactions will permanently survive.

Log

A transaction log records actions executed by a database management system to ensure the ACID properties over crashes or hardware failures. It's a history of updates stored in stable storage.

Check Pointing

Check pointing involves periodically writing a checkpoint record into the log when the system writes modified DBMS buffers to disk. Check points make recovery more efficient and control the reuse of log files.

Media Recovery

Media recovery addresses storage media failures, such as disk failures. Archive copies (dumps) of the database and archive logs are used in media recovery. Archive copies represent database snapshots, and the archive log contains log records for all committed changes not yet reflected in the archive copy. In the event of media failure, the current database is reconstructed using the latest archive copy, applying changes from the archive log chronologically.

Disk organizations like RAID offer faster recovery from disk failures by storing data redundantly across multiple disks. However, they do not eliminate the need for archive-based media recovery.

General Evaluation

1. Crash Recovery: Define crash recovery.

2. Crash Recovery Terminology: Explain the following terms in crash recovery:

(i) Media recovery

(ii) Checkpoint

(iii) The Write-Ahead Log Protocol

3. ARIES in Crash Recovery: Discuss the concepts of ARIES in crash recovery.

**WEEKEND ASSIGNMENT**

1. The process by which a database is moved back to a consistent and usable state is called……….

(a) cash recovery (b) crash recovery (c) past recovery (d) undo recovery

2. The recovery algorithm that uses no-force and steal approach is ………….. (a) ARIAS (b) ARIES   
 (c) ARREARS (d) ARIS

3. ARIES works in ……………. Phases (a) 3 (b) 2 (c) 1 (d) 4

4. Which of these is not a crash recovery type ………… (a) ARIES (b) Media recovery (c) Check   
 pointing (d) UNDO

5. ………. Crash recovery uses backup files (a) Check point (b) ARIES (c) Media recovery   
 (d) atomicity

**THEORY**

1. Discuss the concept of ARIES in crash recovery

2. Explain the difference between media recovery and check point.

3. Explain the difference between a system crash and a media failure.

**WEEK TWO**

**TOPIC: PARALLEL AND DISTRIBUTED DATABASE**

**PARALLEL DATABASE:**

Parallel Database improve processing and input/output speeds by using multiple CPU and disks in parallel. A Parallel Database system seeks to improve performance through parallelization of various operations, such as loading data, building indexes and evaluating queries. In Parallel processing, many operations are performed simultaneously, as opposed to serial processing, in which the computational steps are performed sequentially.

Organizations of every size benefit from databases because they improve the management of information. The database has a server, a specialized program that oversees all user requests. Organization use parallel database approach for a large user base and millions of records to process. They are fast, flexible and reliable.

**Architecture For Parallel Databases**

There are three main architectures for building parallel DBMS

**(i) Shared Memory (ii)Shared Disk System(iii) Shared Nothing System**

**1.Shared Memory System:** This is where multiple processors are attached to an interconnected network and access a common region of memory.

**Share Memory advantages**

1. It is closer to conventional machine and easy to program.
2. Overhead is low.
3. OS Services are leveraged to utilized the additional CPU

**Disadvantages:**

1. **I**t leads to bottleneck problem.
2. Expensive to build.
3. It is less sensitive to partitioning

**2. Shared disk system**: where each processor has its own main memory, and direct access to all disks through an interconnected network.

Shared disk advantages: The same with shared memory

**Disadvantages:**

1. More interference
2. Increases N/ W band width.
3. Shared disk is less sensitive to partitioning.

**3. Shared Nothing:**This is where each processor has local main memory and disk space, but no two processors can access the same storage area and all communication between processor is through a network connection. It has its own mass storage as well as main memory.

**Shared Nothing Advantages:**

1. It provides linear scale up and linear speed up.
2. Shared nothing benefit from “ good” partitioning.
3. Cheap to build.

**Shared Nothing Disadvantages:**

1. It is hard to program.
2. Addition of new nodes requires reorganization.

**EVALUATION**

1. Define parallel database.
2. Enumerate the three architectures for database.

**PARALLEL QUERY EVALUATION**

A relational query execution plan is a graph/ tree of relational algebra operators ( based on this operators can execute in parallel) and the operators in a graph can be executed in parallel. If an operator consumes the output of a second operator, we have pipelined parallelism.

**Data partitioning:** In this case large database are partitioned horizontally across several disk, this enables us to exploit the I/O bandwidth of the disk by reading and writing them in parallel. This can be done in the following ways:

1. **Round Robin Partitioning:**If there are n processors, the 1th tuple is assigned to processor i mod n round-robin partitioning. Round-robin partitioning is suitable for efficiently evaluating queries that access the entire relation. If only a subset of the tuples is required, hash partitioning and range partitioning are better than round-robin partitioning.
2. **Hash partitioning:** A hash function is applied to (selected fields of) a tuple to determine its processor.Hash partitioning has the additional virtue that it keeps data evenly distributed even if the data grows and shrinks over time.
3. **Range Partitioning:** Tuples are sorted and ranges are chosen for the sort key values so that each range contains roughly the same number of tuples, tuples in range, I re assigned to processor i. Range Partitioning can lead to data skew.

**The Advantages of Parallel Databases**

A parallel database runs on many computers at the same time.

1. High Performances
2. Speed
3. Reliability
4. Capacity

**The Disadvantages of Parallel database**

1.Implementation is highly expensive.

2. Handling Parallel database simultaneously is difficult and complex.

3. A lot of resources are needed to support and maintain the database.

**GENERAL EVALUATION**:

1. Define Parallel query evaluation.
2. State three methods data can be partitioned.
3. What are the advantages and disadvantages of parallel database.

**READING ASSIGNMENT**

Understanding Data Processing for senior secondary schoolsby Dinehin Victoria pages 269 – 271

**WEEKEND ASSIGMENT:**

1. ………..system seeks to improve performance through parallelization of various operations. (a) parallel database (b) distributed database (c) relational database (d) flat database.
2. The architecture where multiple processors are attached to an interconnected network and access a common region of memory is called ………. (a) shared memory (b) shared disk system (c) share nothing(d) all of the above
3. In ……….partitioning, tuples are sorted and ranges are chosen for the sort key values.(a) round robin (b) hash (c) range (d) table
4. ………..Partitioning is suitable for efficiently evaluating queries that access the entire relation. (a) range (b) round robin (c) hash (d) query
5. The following are examples of parallel database except. (a) implementation is highly expensive (b) speed (c) reliability (d) capacity

**Theory**

1. Define parallel database.
2. Enumerate the three architectures for database.
3. State three methods data can be partitioned.
4. What are the advantages and disadvantages of parallel database.

**WEEK THREE**

**TOPIC: PARALLEL AND DISTRIBUTED DATABASE**

**Distributed Database:**

**A** Distributed database (DDB) is a collection of multiple, logical interrelated database distributed over a computer network.

A Distributed database management system (DDBMS) is the software that manages the DDB and provides an access mechanism that makes this distribution transparent to the users. A distributed database system is a system that permits physical data storage across several sites and each site/node is managed by a DBMS that is capable of running independently of the other sites. It is a database in which storage devices are not all attached to a common processing unit as the CPU, controlled by a distributed database management system. It may be stored in multiple computers, located in the same physical location; or may be dispersed over a networkof interconnected computers. System administrators can distribute collections of data (e. g in a database) across multiple physical locations. A distributed database can reside on network servers on the internet, on corporate intranets, or on other company networks.

Two processing ensure that the distributed database remain up- to data and current:

* **Replication:** involves using specialized software that looks for changes in the distributed database. Once the changes have been identified, the replication process makes all the databases look the same. The replication process can be complex and time –consuming depending on the size and number of the distributed databases
* **Duplication:** This process has less complexity, it basically identifies one database as a master and then duplicates that database. The duplication process is normally done at a set time hours. This is to ensure that each distributed location has the same data. In the duplication process, users may change only the master database, which ensures that local data will not be overwritten. .

A Distributed Database management system is designed for heterogeneous database platforms that focus on heterogeneous database management systems. The following property are considered desirable:

**Distributed Data Independence:** Users should be able to ask queries without specifying where the referenced relations, or copies or fragments of the relations are located.

**Distributed Transaction Atomicity:** Usershould be able to write transactions that access and update at several sites just as they would write transactions over purely local data

**Types of Distributed Database**

There are two major types of distributed database systems: they are:

* Homogenous distributed database
* Heterogenous distributed database.

1. **Homogenous distributed database.**

The following conditions must be satisfied for homogeneous database:

The operating system use, at each location must be the same.

the operating system, must , data structures and database application used at each location must be same or compatible.

1. **Heterogenous distributed database.**

The following conditions must be satisfied for heterogenous database:

Different sites may use different schema and software.

In heterogenous systems, different nodes may have different hardware, software and data structure at various nodes or locations.

**EVALUATION**

1. Explain the distributed database
2. List and explain two major types of distributed database.

**Architectures of Distributed Database Systems**

The three major distributed DBMS architectures are:

(i)Client Server (ii) Collaborating Server (iii) Middleware

1. **Client Server Architecture:** In this architecture, the Client (front end) does data presentation or processing, while the Server (back- end) does storage, security and major data processing. Client are held responsible for user-interface issues and servers manage data and execute transactions. A client-server system has one or more client processes and one or more server processes, and a client process can send a query to any one server process. Thus a client process could run on a personal computer and send queries to a server running on a mainframe.

**Clients characteristics**

* Always initiate requests to servers.
* Waits for replies.
* Receives replies.
* Usually connects to a small number of servers at one time.

**Servers characteristics**

* Al**w**ays wait for a request from one of the clients
* Servers client request then replies withrequested data to the clients
* A server may communicate with other servers in order to serve a client request.
* A server is a source which sends request to client to get the needed data users.

**Advantages of Client – Server Architecture**

* Very easy to implement because of its clear separation of functionally and centralized server.
* Allowuser to run a graphical user interface.
* It enables the roles and responsibilities of a computing system to be distributed among several independent computers known to each other only through network. It also provides greater ease of maintenance.
* Servers provides better security control access and resources to guarantee that only those clients with the appropriate permissions may access and change data.
* Since data storage is centralized, updates to that data are much easier to administrators.
* Many advanced client-server technologies are designed to ensure security, user friendly interfaces and ease of use.
* It works with multiple different clients of different specifications.

**Disadvantages of Client-Server**

* The client-Server architecture does not permit a single query to span multiple servers.
* Some times to separate and distinguish between clients and server architecture become harder.
* Problem of overlapping, the client process and the server.
* Networks traffic blocking is one of the problems related to the client-server model.

1. **Collaborating Server System:** This is a collection of database servers, each capable of running transactionsagainst local data, which cooperatively execute transactions spanning multiple servers. This overcomes the problem of client-server architecture.
2. **Middleware architecture:** All web transactions takes place on the servers. The web server is responsible for communicating with the browser while the database server is responsible for storing the required information.

**Advantages of distributed databases**

* Data is stored at anumber of sites, also referred to as nodes.
* The processors at nodes are interconnected by a computer network rather than a multiprocessor configuration.
* The distributed database is indeed a true database, not a collection of files that can be stored individually at each node.
* The overall system has the full functionality of a database management system.
* Reliable transactions due to replication of database
* Hardware, operating system, network, fragmentation, DBMS, replication and location independence.
* Continuous operation, even if some nodes go off line.
* Distributed query processes can improve performance.
* Easier expansion.
* Local autonomy or site autonomy: a department can control the data about them.
* Protection of valuable data if there is a fire outbreak as a result of the distributed data in multiple sites.
* Modularity systems can be modified added and removed fro the distributed database without affecting other systems or modules.
* It is very economical.

**Disadvantages of distributed databases**

* Data integrity is difficult to maintain.
* Distributed data is very complex in nature. For example, extra work must be done to maintain multiple desperate systems, instead of one big one.
* It is not really economical because a more extensive infrastructure implies extra labour costs.
* Absence of standards right.
* Additional software are needed.
* Complexity in database design.
* Operating system should support distributed environment.

Storing Data in DDBS

Data storage in distributed database involve two concepts

1. Fragmentation
2. Replication
3. **Fragmentation:** This is a process of splitting a relation into smaller relation or fragments, and storing the fragment possibly at different sites. In horizontal fragmentation, each fragment consists of a subset of rows of the original relation. While in vertical fragmentation, each fragment consists of a subset of columns of the original relations.
4. **Replication:** This means that several copies of a relation or relation fragment can be stored. An entire relation can be replicated at one or more sites. Similarly, one or more fragments of a relation can be replicated at other sites. For example, if a relation R is fragments into R1, R2 and R3, there might be just one copy of R1, whereas R2 is replicated at two other sites and R3 is replicated at all sites.

**Parallel DBMS against distributed DBMS**

* **Parallel DistributedSystem:** seeks to improve performance through parallelization of various operations, such as data loading, index building and query evaluating.
* **Distributed Database System:** Data is physically stored across several sites, and each site is typically managed by a DBMS capable of running independent of the other sites. The distribution of data is governed by factors such as local ownership and increased availability.

1. **System Component**

Distributed DBMS consists of many Geo-distributed, low –bandwidth link connected, autonomic site. While parallel DBMS consists of tightly coupled, high- bandwidth link connected, non- autonomic node.

1. **Component Role**

Sites in distributed DBMS can work independently to handle local transaction or work together to handle global transactions. While nodes in parallel DBMS can only work together to handle global transactions.

1. **Design Purposes**

Distributed DBMS is for sharing data, local autonomy, high availability, while parallel DBMSA is for high performance high availability.

**GENERAL EVALUATION**

1. Explain the distributed database
2. List and explain two major types of distributed database.
3. State the two concept of data storage in distributed database.

**READING ASSIGNMENT**

Understanding Data Processing for senior secondary schoolsby Dinehin Victoria pages 272 – 277

**WEEKEND ASSIGNMENT**

1. A distributed database system is a system that permits ………. data storage across several sites. (a) physical (b) logical (c) vertical (d) horizontal
2. Network traffic blocking is one of the problems related to the ………. model.. (a) parallel database (b) distributed database (c) client server (d) network
3. This is a process of splitting a relation into smaller relation or fragments. (a) Replication (b) shared memory (c) fragmentation (d) implementation.
4. One of the following is architecture of distributed database system. (a) table (b) fragment (c) replication (d) client server.
5. In distributed Database data is stored at a number of sites, also referred to as………. (a) nodes (b) field (c) hierarchical (d) platform.

**WEEK FOUR**

**TOPIC: NETWORKING**

**Networking**

A computer network is system that connects two or more computers together using a communication link. It describes a processing system with a number of independent, relatively low speed, online, simultaneously usable work stations. In a network , remotely located computer stations are connected to a centrally located sophisticated, high speed processor via a communication link (telephone lines, microwave links, satellite) for purpose of sharing resources like printers, processor, programs and some other information.

**Work station/ Client:** Each computer in a network is often referred to a work station or clients. Clients are the computers that can access the shared network resources provided by a server.

**Server:**A server provides shared resources and data over a network. It is usually a high performance micro-computer with several drives often given several gigabytes of capacityand perhaps a few CD-ROM drivers, server allow all the microcomputer to have access to an external network via the network communication system.

**Media:**The computers are linked to each other by hardware components such as cables (UTP, STP, coaxial and fiber optics)

**User:** This is any person that uses a client to access resources on the network.

**Resources:** These are files, printers, modem or other items that can be used by network users. These

can be hardware or software resources.

**Protocol:**They are written rules used for communication. They are language that computers used to talk to each other over a network eg. TCP/IP, AppleTalk

**EVALUATION**

1. Explain computer network.
2. Explain the following terms: (i)Work station (ii) Server (iii) Media (iv) resources (v) Protocol

**Categories of Computer Networks**

Computer networks are categorized according to how they are organized, the way in which they are used, and the limit of distance covered in the area of operation. These include:

1. Local Area Network (LAN).
2. Wide Area Network ( WAN)
3. Metropolitan Area Network (MAN)

**LOCAL AREA NETWORK**

This is a popular form ofnetwork which refers to the connection of computers within a limited geographical area or within the same building or different building on the same site. Several LANs can be connected by the use of bridges and routers.

**WIDE AREA NETWORK**

This is a network between large geographical area. It is a global connection of computers. They are more sophisticated and use superior transmissions channel like microwave and satellite transmission to reach users over very long distance. One of the most widely used of WANs is the Internet, which allows users to connect to other user worldwide.

**METROPOLITAN AREA NETWORK**

This is a network used to link users within metropolis or city.

**Network Topology**

Topology is the term used to describe the physical arrangement of computer in networks. A computer network can be arranged or configured in several different ways:

**Types of network Topology**

(i)Star Topology (ii) Bus Topology (iii) Ring Topology (iv) Hierarchical Topology

**1. Star Network:** In a star network, a number of small computers are connected to the central resources usually called a host computer or file server. The star is a common arrangement for linking several microcomputers to a mainframe and providing a tine sharing system. This arrangement provides high security because every communication between work stations must be via the central node computer (servers)

**Advantages of star Topology**

* It is most reliable because if a node or a node cable fails it does not affect the other nodes.
* New nodes or devices can easily be connected without affecting rest of the network.
* Performance of the network is dependent on the capacity of the central hub, adding further nodes do not greatly affect the overall performance.
* Existence of centralized management helps in monitoring the network.
* Ease of installation and upgrading from a hub to a switch.
* Simple and cheap.

**Disadvantages of Star Topology**

* If the server or the link to the server fails, the whole network is bound to fail.
* The additional devices such as hubs or switch increase the overall cost.
* The addition of more nodes depends on the capacity of the central device.
* Reconfiguration, fault isolation and installation of new devices tend to be difficult.

**2. Bus Topology:** It has a common cable to which all the computers on the network are linked. The common cable usually terminated at each end. One or more of the station on the network acts as the file server. An example of the bus system is the **ETHERNET.**

**Advantages of Bus Network**

* Installation is very simple and cheap.
* It is suitable for temporary network.
* The failure of one node does not affect the rest of the bus network.
* Flexibility of nodes is visible as they can be attached or detached without any problem.
* Troubleshoot is easier compared with ring topology.

**3. Ring Network:** It uses one network cable to connect all the workstation in an arrangement that looks like a ring. Ring networks are less secure because data intended for a particular machine may have to pass by other machines before it gets to its destination in the network.

**Advantages of Ring Network**

* This is an orderly network, where everydevice has access to token and the privilege to transmit and this helps to reduce chances of collisions.
* Equal access to resource by each computer or node.
* The performance of the network is not affected by additional components
* Installation and reconfigure is made easy since addition or deletion of a device requires moving just two components.
* No need of central server to manage the connectivity between the computers or nodes.

**Disadvantages of Ring Network**

* The hardest of all topology to troubleshoot because it can be hard to track down where in the ring, the failure has occurred.
* Addition, changing and moving the nodes can affect the network.
* For the node to communicate with one another there is need for all the nodes to be switched on.
* The entire network is affected if one workstation or port goes down.
* The whole network will fail if any one of the cable fails anywhere in the ring.

**Hierarchical Network:** This is a specialized kind of bus topology, the terminals are connected in the same fashion as the branches of a tree. It is very easy to extend and if one of the branch fails, it can easily be removed.

**Advantages of hierarchical network**

* The failure of one segment does not affect the network.
* Easy to extend.

**Disadvantages**

* It depends heavily on the hub and its failure affects the entire system.
* Maintenance is not easy and cost is high.

**GENERAL EVALUATION:**

1. What is Network topology?
2. List and explain the three types of network topology.

**READING ASSIGNMENT**

Understanding Data Processing for senior secondary schoolsby Dinehin Victoria pages 280 – 282

**WEEKEND ASSIGNMENT**

1. …………are language that computers used to talk to each other over a network (a) Media (b) user (c) Protocol (d) server
2. An example of the bus system is the ………… (a) Ethernet (b) intranet (c) ring (d) star
3. ……….. is the term used to describe the physical arrangement of computer in networks. (a) Internet (b) Topology (c) Ethernet (d) hub
4. The network configuration in which the terminals are connected in the same fashion as the branches of a tree is called ……… (a) Flat (b) relational (c) Hierarchical (d) network
5. In a star ………, a number of small computers are connected to the central resources usually called a host computer or file server (a) Star (b) .Ring (c) Hierarachical (d) Flat

**WEEK FIVE**

**TOPIC: NETWORKING**

**Benefits of Networking**

1. It allows file sharing and remote access.
2. Sharing resources such as printers, fax machine etc.
3. Provides high speed for sharing and transferring.
4. Networking provides security such as password.
5. Provides centralized software management
6. Provides internet access sharing.

**INTERNET**

The Origins of the internet dates back to1960s when the United State funded research projects of its military agencies to build robust, fault-tolerant and distributed computer network.

The **internet** is a global system of interconnected computer network that use the standard internet protocol suite (TCP/IP) to serve billions of users worldwide. It is a network of networks that consists of millions of private, public, academic, business, and government networks of local to global scope that are linked by a broad array of electronic and optical networking technologies. The internet carries a vast array of information resources and services, most notably the interlinked hypertext documents of the World Wide Web (www) and the infrastructure to support electronic mail. One of the simplest definitions of internet is that, it is a collection of computer linked together.

**BASIC TERMS ASSOCIATED WITH THE INTERNET**

**Gopher: enable you to access other computer on the internet.**

**Browse:** This is a term used to refer to the process of accessing and viewing web pages on the internet.

**Browser:** A browser is also called a web browser. It is a software application that is used to access and view web pages in the internet. Most browsers can be used to send and receive email, connect to web based email services and read newsgroup.

Some popular browsers are: Internet Explorer, Opera, Safari, Chrome, Mozilla etc.

**Chart rooms:** These are virtual communication platforms where many people keep in contact with family, friends and classmates. Some websites that have chart rooms are Yahoo, AOL, MSN, Google etc. Some chart rooms allows the use of webcam to view each other and communication of emotions using chart emoticons.

**Cyber Space**: This term is used to describe internet networks and the www.

**Download**: This is a process of retrieving information from the internet onto a personal computer. A user can download files, music, software or games onto a personal computer.

**Electronic mail (E-mail)**: A mail that is sent and received through the internet is called an e-mail. For a user to send and receive message on the internet he/she must have an email address. Example of an e-mail address is [robert\_egbe@yahoo.com](mailto:robert_egbe@yahoo.com).

**Home Page:** This is the start page of any website. It refers to the initial or main page of a website that loads when a user specifies the URL of a website in a web browser.

**HTML**: HTML a short for Hyper Text Mark-up Language is a computer language with some sets of markup symbols and codes that are used for building websites.

**Protocol**: It is the standard or set of rules by which computers communicate over the network.

**Web Page**: A web page is a html document or resources of information in a website that is presented as a page.



**HTTP**: HTTP stands for Hyper Text Transfer Protocol. It is the protocol for transferring web pages in the web.

**ISP**: Internet Service Protocol is a company that provides individuals and companies access to the internet. Examples of ISPs in Nigeria are: IPNX, Linkserve Limited, Cobranet Limited, Swift Networks Limited, etc.

**Upload**: This term refers to the process of transmitting a file from a local computer onto the internet. It is the opposite of download.

**Website**: The website is a collection of web pages that are related to an entity, activity or event. The beginning page of a website is called the **Home page**.

Some examples of websites are:

Information Technology Organizations

1. <http://www.hiitplc.com>
2. <http://www.microsoft.com>
3. <http://www.cpn.gov.ng>

HIV/AIDS control Organizations

1. <http://www.unaids.org>
2. <http://www.who.int/hiv/>

Examination Bodies

1. <http://www.waeconline.org.ng/>

Drug Control Agencies

1. <http://wwwndlea.gov.ng/>
2. <http://www.nafdacnigeria.org/>

Individual Website

1. <http://rosecox.net>

**Evaluation**:

1. Define internet.

2. Mention 5 terms associated with the internet and explain them.

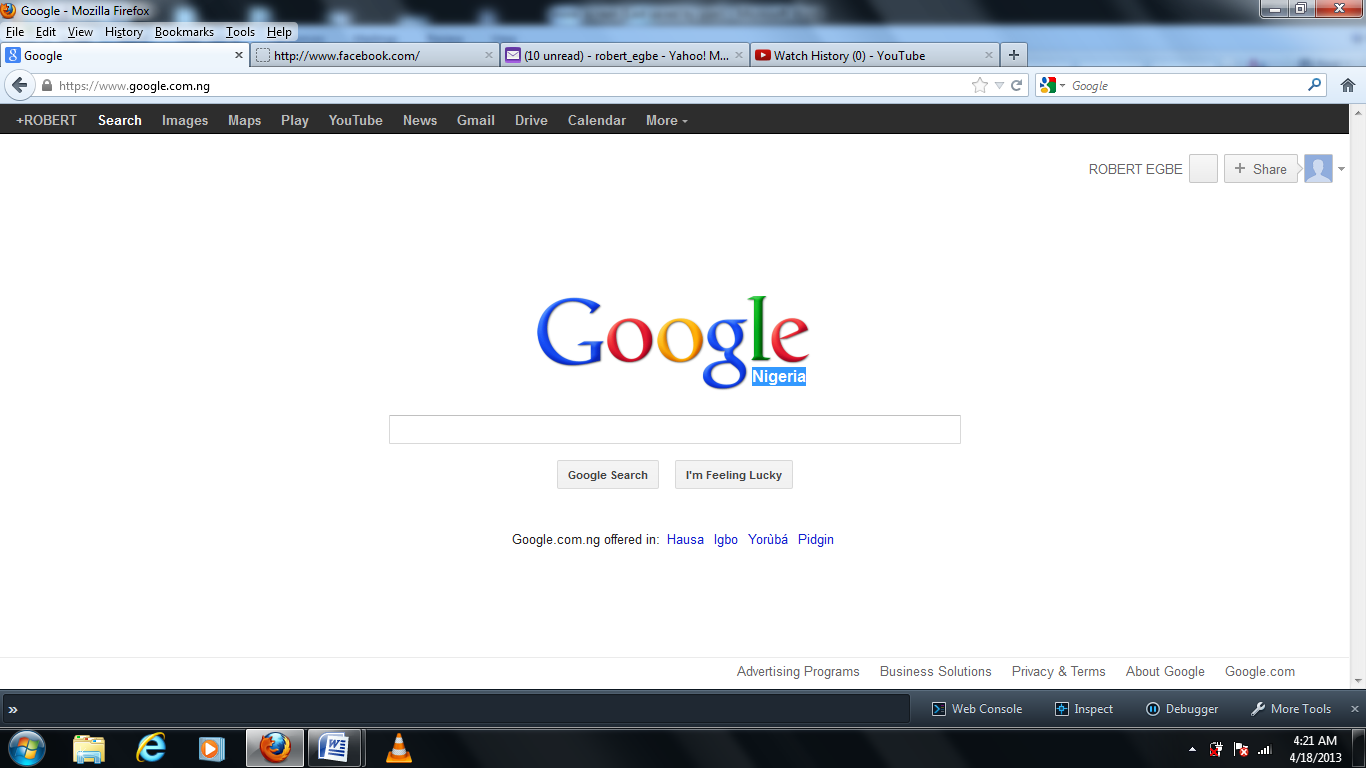
**INTERNET MAIN BROWSER**

The common internet browsers are:

1. Internet Explorer
2. Firefox
3. Opera
4. Netscape Navigator
5. Google Chrome
6. Maxthon Browser
7. Rocketmelt Browser
8. SeaMonkey Browser
9. Deepnet Explorer
10. Safari Browser

**Internet Explorer**

Internet Explorer is a graphical web browser developed by Microsoft.



**Firefox**

Mozilla Firefox is a free and open source web browser managed by Mozilla Corporation. Firefox is one of the widely used browsers.

**Opera**

The opera browser is a web browser developed by opera software. It is smallest and fastest browser in the world.

**Netscape Navigator**

Netscape Navigator browser is a product of the Netscape Communication Corporation.

**Evaluation**

1. List 4 examples of a browser

2. Explain them

**FEATURES OF MAIN BROWSER**

The common features of the main browser are:

**Title Bar**

The title bar is at the very top of the browser windows. In both Firefox and Internet Explorer web browser is normally seen on the blue bar at the top. The title of the web page is displayed on the title bar.

**Menu Bar**

The menu bar contains menus such as File, Edit, View, History, etc. it is the bar underneath the title bar.

**Tool Bar**

The toolbar and its icon are displayed at the top of the browser windows underneath the menu bar. This is where the Back button, the Home button, the Refresh button, etc are found.

**Address Bar**

The address bar is the box at the top of the browser windows that displays the entire URL, or web site

address.

**BENEFITS OF INTERNET TO THE SOCIETY**

The internet plays a major role in the society in the following application areas:

1. Education/E-learning: With the internet, people can get educational materials and read them in preparation for examinations, or use them for school assignments. The internet also enhances electronic learning whereby courses or subjects are taught online using audio and, or visual material.
2. E- Registration: The internet provides users with facilities for online registration of examinations like WAEC, NECO and JAMB.
3. Entertainment: The internet kills boredom and enhances leisure by providing its users with latest entertainment in the form of movies, games, news, and many more.
4. Communication: This is one of the key benefits of the internet. The internet provide many means by which users can communicates with friends, family, colleagues, and more through emails and other social sites like facebook, yahoo massager, 2go, twitter etc.
5. E-Banking: The internet can be used as a tool to carry out transactions with banks irrespective of user’s location.
6. E-Commerce: Internet is also a tool for E-commerce. It allows users to buy and sell their goods and services online regardless of their location.

**INTERNET SECURITY**

Internet security is the practice of protection and preserving private resources and information on the internet. It is a protection to your personal computer from any harmful and malicious spyware.

Its objective is to establish rules and measures to use against attacks over the internet. Different methods have been used to protect the transfer of data including, encryption, use of antivirus software, using firewall, use of passwords that are not disclose to unauthorized users etc.

**ABUSE OF INTERNET**

Internet abuse is the inappropriate usage of the internet. Below are some of the common internet abuse:

1.**Computer crime**: A computer crime is any unlawful activity that is done using a computer.   
 This definition can extend to traditional crimes that are committed with the machine, such as   
 counterfeiting money, but it also includes more tech –savvy crimes, such as phishing or   
 logic bombs use of computers in criminal activity

2.**Cyber-bulling**: Is the use of technology to harass, threaten, embarrass, or target another person.

3.**Spam**: Unsolicited e-mail often of a commercial nature.

4. **Malware**: These are software designed to harm a user’s computer, including computer viruses. Malware is short for malicious software which includes computer viruses, worms, Trojans, adware, spyware, crimeware, scar ware, rootkits, etc.

**Communication Channel /Media**

There are kinds of channels/ media used to transmit data. Transmission media are physical paths for carrying information like, a pair of wire. These are telephone lines, coaxial cable, fiber optic cable, microwaves and satellite.

**Intranet:** This is a private network within an organization that resembles the internet.

**Extranet:** It is a private network that connect more than one organization. It is actually intranet that is partially accessible to authorized outsiders.

**GENERA EVALUATION**

1. Define Networking.
2. State four benefits of Networking.
3. Differentiate between intranet and extranet.

**READING ASSIGNMENT**

Understanding Data Processing for senior secondary schoolsby Dinehin Victoria pages 283 – 287

**WEEKEND ASSIGNMENT**

1. One of the disadvantages of hierarchical network is that it depends heavily on the hub and its failure affects the entire system. (a) entire system (b) part of the system (c) single system (d) partial system.
2. One of the following is a communication medium. (a) coaxial cable (b) book (c) typewriter (c) windows (d) episode.
3. This is a term used to refer to the process of accessing and viewing web pages on the internet is called (a)Browse:
4. is a private network within an organization that resembles the internet. (a) internet (b) Intranet (c) WAN (d) server
5. The internet provides users with facilities for online ………. of examinations like WAEC, NECO and JAMB (a)learning (b) registration (c) commerce (d) banking

**Theory**

1. Define Networking.
2. State four benefits of Networking.
3. Differentiate between intranet and extranet.

**WEEKSIX**

**TOPIC: COMPUTER VIRUS**

**COMPUTER VIRUS**

Computer virus is a software program written with malicious intentions. They are intentionally written by some software developer to cause severe damage for the computer, programs, and data files in which it found itself. A computer virus has the ability to replicates itself by changing other programs to include a copy of itself.

Examples of computer viruses include: form, cascade, virus 101, phoenix, stimulate, involuntary, proud, disk killer, multi partite, flip, Trojan horse, sleeper, logic bombs, Alabama virus, Christmas virus, worm, data crime, Jerusalem virus, Barcelonia virus April1st virus etc.

**Type of computer virus**

There are basically three ways in which virus will infect micro-computers:

1. Boot sector
2. Executable file viruses
3. Document

* **Boot sector virus:** They affect hard drives and flash disks by making itselfavailable on the boot sector of the disk. Booting up from an infected flash disk can cause damage to the hard drive. Examples of boot sector viruses are polyboot.B, AntiEXE
* **Executable file viruses:** They spread infection by attacking the code to executable files (EXE, COM) in this way, the virus program will be executed before the host program is executed.
* **Document virus:** Virus can affect the document by moving from disk partition table to a different sector and replace with its own code, therefore. Infecting document as they are accessed.

**Other types of virus include the following:**

* **Resident virus:** This type of virus dwells in the RAM memory is permanent in nature. Its effect of existence is to overcome and interrupt all the operations executed by the system.for instance, corrupt files and programs that are opened, closed, coped etc.

Examples are CMJ, Meve, Randex, and Marklunky.

* **Micro Virus:**This type of virus infects files that are created by making use of certain program or application that have macros. Examples are Relax, Melissa. A, Bablas, 097M/Y2K
* **Overwrite Virus:**Overwrite virus deletes the information contained in the files, it duplicates itself by rendering information partially or totally useless. The only way to clean a file infected is to delete the file totally, thus losing the original content.
* **Directory Virus:** This virus changes the paths that indicate the location of a file.When you execute a program that has been infected with this virus, indirectly you are running the virus program, meanwhile, the original file and program has been displaced by the virus. It is then impossible to locate the original location of file or program.
* **Polymorphic viruses:** They change themselves through different ways.eg. Encryption and this act makes it impossible for antiviruses to find them using string or signature searches. They have the ability of duplicating themselves in large numbers. Examples include: Elkern, Marburg, Satan Bug, and Tuareg.
* **Fat virus:** This is part of a disk that is used to connect information and it is a vital part of the normal function of the computer. They prevent access to certain section of the disk where important files are stored and the damage caused can result in information losses from individual files or entire directories.

**EVALUATION**

1. Define computer virus.
2. State five types of computer virus.

**Other Malicious programs**

There are other types of destructive programs not purely classified as virus but are equally threats to internet eg. Worm

* **WORMS**

Worm is considered to be a sub-class of a virus. It spreads from one computer to another without any human action and they have the capability of reproducing itself on the system at any point in time. For example, worm can spread itself to everyone listed in your email address book. Worm consumes or occupy a large part of computer memory thereby causing network servers and individual computers to stop responding. Worms travel across the network. ExamplePSWBBugbear.B, Lovegate.F, Trile.C, Sobig.D, Mapson,Blaster.

* **Trojans or Trojan Horses**

Trojans do not reproduce themselves by infecting other files nor can they replicate like worm but they will actually do damage once installed in the system. Sometimes they appear to be useful software but when it is activated the result can be annoying ( adding silly active desktop icons), or deletion of files and information on the system. Hacker utilizes viruses or Trojans to gain access to your computer, to steal data, invade privacy or use computer for their evil purposes. e.g: Netbus, subseven, Beast, Zeus, Flashback Trojan, ProRat, ZeroAccess etc.

* **LOGIC BOMBS**

They are not really a virus parse because they lack the ability of replicating themselves. They can camouflage segments of other programs, despite the fact that they are not programs. Their aim is to destroy data on the computer once certain conditions have been met.

* **Adware and spyware**

They usually come together with other programs that seem to be harmless. These programs are not as dangerous as virus but also collect data of your computer and send it “home” which is in most cases a company uses this information to spam you with advertising E-mails. Spyware can track internet searching habits and possibly redirect web site activity. e.g. The red sheriff and BESS.

**Examples of Computer Virus**

Macro viruses Nuclear.DMV.Word concept

Boot viruses Form, Disk Killer, Michelangelo, Stone virus

Active X and JAVA viruses

Stealth viruses Frodo, Joshi, whale

Program viruses Cascade, Sunday

Polymorphic viruses- cascade, pround, EvilVirus 101, phoenix, stimulate, involuntary

Multipartite viruses, Tequila, invader, Flip

**GENERAL EVALUATION**

1. Define computer virus.
2. State five types of computer virus.
3. Mention six examples of computer virus.

**READING ASSIGNMENT**

Understanding Data Processing for senior secondary schoolsby Dinehin Victoria pages 287 – 289

**WEEKEND ASSIGNMENT**

1. …………is a software program written with malicious intentions.
2. Computer virus (b) infection (c) e-scan (d) Anti virus
3. ………… deletes the information contained in the files.
4. Fat virus (b) micro virus (c) Overwrite virus (d) Polymorphic virus
5. ……… utilizes viruses or Trojans to gain access to your computer, to steal data, invade privacy or use computer for their evil purposes. (a) Hackers (b) files (c) human (d) detector.
6. Examples of computer virus include the following except …………….. (a) disk killer (b) e-scan (c) tequila (d) cascade
7. A virus that can track internet searching habits and possibly redirect web site activity is called …………. (a) logic bomb (b) fat virus (c) spyware (d) worm

**WEEK SEVEN**

**TOPIC: COMPUTER VIRUS**

**SOURCES OF INFECTION VIRUS**

There are various ways in which viruses can attack computer system;

* When you download or open attachment in e-mail message or by instant messaging messages
* Installing unknown program from unreliable and suspicious looking web sites
* Illegal duplication of software from one computer to another e.g. computer games etc.
* When you use infected flask h drive or CD-ROMS or DVD on your system
* Viruses can be transmitted from one computer to another e.g through infected diskettes
* Viruses can infect your computer when you download from the internet
* Virus infection can happen through an infection flash disk, hard disk or optical disk. Computers on internet are more prone to virus infection as different types of virus are constantly released and can be downloaded easily into the system.
* Another source of infection can be bad handling of the computer which can cause critical system malfunction e.g. exposing the computer to heat source, severe power fluctuation etc.

**Virus Warning Signs**

1. Slowing down of the response time
2. Presence of tiny dots.
3. Wandering across the screen.
4. Incomplete saving of file.
5. Corruption of the system set-up instruction.
6. Appearance of strange characters.
7. It can cause organized program into a disorganized program and making them not to execute.
8. It destroys the partition task file, even the entire system of hard drive.
9. Causes damage to valuables stored on any storage media.
10. Causing machine to stop and suddenly restarting itself.
11. Sudden disappearance of programs and applications from the system without deletion.
12. New windows keep opening up at an alarming rate.

**Preventing Computer Virus**

1. A good and reliable antivirus should be installed.
2. Avoid suspicious websites that attempt to install and run a program on your system.
3. Install anti-spyware and anti-malware programs.
4. Scan any e-mail attachment you want to view and open.
5. Watch your download from the internet e.g. music, video and any other items.
6. Install firewalls.
7. Set-up automatic virus scan.
8. Update antivirus regularly.
9. Stay away from cracked software and be prepared to lock down anytime you hear of a new virus.

Computer Antivirus

**Antivirus** is a program developed to destroy computer virus wherever it is found in the system. Examples of antivirus software are:

1. Norton antirust
2. McAfee virus scan
3. Dr Solomon Trolled
4. Pennicillin
5. Microsoft Antivirus
6. Check point Antivirus
7. Central point Antivirus
8. Avast
9. Karpersky
10. E-scan

**General Evaluation:**

1. Mention five examples of computer virus. 2. State five sources of virus infect micro computer..

3. State seven virus warning sign. 4. State five ways of preventing computer virus.

**READING ASSIGNMENT**

Understanding Data Processing for senior secondary schoolsby Dinehin Victoria pages 290 – 292

**WEEKEND ASSIGNMENT**

1. Virus warning sign include the following except ……………(a) Presence of tiny dots.(b) Incomplete saving of file. (c) e-scan (d) Slowing down of the response time
2. ………… deletes the information contained in the files.
3. Fat virus (b) micro virus (c) Overwrite virus (d) Polymorphic virus
4. …………………. prevent access to certain section of the disk where important files are stored and the damage caused can result in information losses from individual files or entire directories (a) Polymorphic virus (b) micro virus (c) overwrite virus (d) Fat virus
5. …………..is a program developed to destroy computer virus.
6. Anti virus (b) malware (c) spyware (d) virus
7. ……………… consumes or occupy a large part of computer memory thereby causing network servers and individual computers to stop responding.
8. Trojan horse (b) worm (c) spyware (d) malware

**THEORY**

1. Define computer virus.
2. State three ways in which virus can infect micro computer.
3. State five sources of virus infect micro computer..
4. State five ways of preventing computer virus.
5. State five examples of anti virus

**WEEKEIGHT**

**TOPIC: CAREER OPTIONS IN DATA PROCESSING**

**COMPUTER PROFESSIONALS:**

Computer personnel are those who assemble, install, repair and operate the computer system. The term equally includes those people who make their living out of the computer industry. They include the following:

* Database Administrator
* Software programmer
* Hardware Engineers
* System analysts
* Web developers
* Computer support specialist
* Network Administrator
* Network Engineers
* Computer Technician
* Microsoft office specialist
* Computer Educators

**EVALUATION**

1. Define computer professionals.

2. Mention seven computer personnel.

1. **DATABASE ADMINISTRATOR**

A Database administrator is in charge of storing, organizing, presenting, using and analyzing data and database management software. A database administrator set up new computer databases or integrating data from old system to new systems. Performs routine tests and modifications to ensure that a database is performing and running correctly. A database administrator troubleshoots the programs and hardware based on the findings, repairs or changes can be made to fix the problems.

**Primary Functions**

Database server and applications are installed and upgraded by him.

He allocates system storage and any

1. **Software Programmer**

ASoftware Programmer is the one that writes a set of instructions to be executed by the computer. He designs, builds and tests software before releasing any software for public

consumption.

**Functions**

* He plans, writes, tests and maintains all programs and packages installations.
* Installation andtesting of routines application is carried out by him.
* He codes, debugs tests and keeps routine application programs.
* He writes a program once the system analyst designs a system after much consultation with the system manager.
* Training of the subordinate in programming and program coding is done by him.
* He assists users with procedural or minor technical problems
* He enters test data and programs code into the system
* He assigns, coordinates and review work of programming personnel.
* Collaborates with computer manufactures and other users to develop new programming methods.

1. **Hardware Engineer**

System Engineer: Is in control of all installation of hardware of the computer system. He is in charge of servicing, repairing and general maintenance of the system. Computer hardware engineers design and develops computer hardware and support peripherals. They are the brain behind any computer generated technology.

**Computer Software Engineer:** He or she focuses on the development and design of computer software. The software design includes the design of applications and programs that create and store text documents to the operating systems used in personal computers.

System analyst: A system analyst carries out feasibility study on a system. He is the person who thinks of likely problems that may arise from the system and application software and he proffers solutions. He works closely with computer manager and his counterpart in the programming department.

**Primary Functions**

He is responsible for collecting information to analyze and evaluate existing system.

Preparation of Flowchart and Diagrams explaing system capability and processes.

Specifying and designing Computer system as well as implementing and maintaining them.

He undertakes research and recommends hardware and software development, purchase and use.

He ensures that new technical requirements are properly integrated with the existing ones.

1. **Web Developers**

A web developer is a programmer whose primarily function is to develop and write a program development on worldwide web applications or distributed network applications that can run over HTTP from a web server to a web browser.

**Primary Functions**

1. He write program, test and debug all web applications.
2. He designs, develops, test and deploy web applications.
3. He develops appropriate code structures to solve specific problems.
4. He prepare and coordinate intranet web updates and internet website changes.
5. He fixes bug, troubleshoot and resolve problems.
6. He researches and process software programs that are compatible to the future technologies.
7. **Data Analyst**

They are professionals, who collect, maintain and troubleshoot problems generated from the storage of digital information. A data analyst works in the information technology field in assessing and organizing data generated from research, customer relations or business relations. They develop tools or software programs that present data in a useful format for business needs.

1. **Data Entry Clerk**

Data entry clerk, also known as Data Entry Keyers, compiles and transfer information for business, government agencies and other organizations. Data entry clerks compile orders, invoices and memo in an organized manner and input the relevant information into computers using software and templates.

1. **Network Administrator**

They install, configure, expand, protect, upgrade, tuning and repairing the networks. Network Administrators install, manage and maintaining ICT infrastructure such as hubs, switches, routers, cables, server and clients as well as network software operating systems e.g mail server, backup software, database servers and application software.

1. **Enterprise System Administrator**

This is a professional that install, manage and maintaining of ICT cabling/ transport network and architecture. He develops and implement IT security and data center as regards to the overall network.

1. **Computer Educator**

A computer educator trains up user to have knowledge of computer hardware and software.

1. **Computer support specialist**

He provides technical assistance to computer system users, resolve computer problems in person, through telephone or from remote locations. He also renders service concerning the use of computer hardware and software, including printing, installation, word processing, electronic mail and operating services.

**Qualities of Good Computer Professionals**

A good computer professional must possess the following qualities:

1. Excellent analytical skills that can be applied to solve problems or develop new ideas.
2. Must pay attention to detail to ensure everything works correctly and efficiently.
3. Show commitment to learning to keep abreast to the latest trend in information technology.
4. Must possess good communication skills.
5. He or she must have strong interest for maths which is useful in many computer applications like programming.
6. Must have the ability to learn and memorize programming languages.
7. Must possess the ability to handle multitasking i. e.g. ability to perform many tasks at once and must be able to manage all his responsibilities simultaneously.
8. Computer professionals should be able to solve or troubleshoot problems with network, software and other programs.
9. A good computer professional must possess technical writing skill.

**GENERAL EVALUATION**

1. Define computer professionals.

2. Mention seven computer professionals and explain the primary functions.

3.State five qualities of a good computer Professionals.

**READING ASSIGNMENT**

Understanding Data Processing for senior secondary schools by Dinehin Victoria pages 298 –302

**WEEKEND ASSIGNMENT**

1. ………….are those who assemble, install, repair and operate the computer system.

(a) Computer personnel (b) Mechanic (c) Doctor (d) Lawyer

1. A good computer professional must possess ……….. writing skill. (a) logical

(b) technical (c) physical (d) little

1. A **…………..** is the one that writes a set of instructions to be executed by the computer. (a) software programmer (b) data analyst (c) computer operator (d) data entry clerk
2. The ………………. a professional that install, manage and maintaining of ICT cabling/ transport network and architecture. (a) computer educator (b) enterprise system administrator (c) database administrator (d) programmer
3. **………….** He provides technical assistance to computer system users, resolve computer problems in person, through telephone or from remote locations. (a) Computer support specialist (b) database administrator (c) computer user (d) system analyst

**THEORY**

1. **S**tate one difference between a computer professional and computer user.
2. List five computer professionals and explain their primary functions.
3. State five qualities of a good computer Professionals.

**WEEK NINE**

**TOPIC: CAREER PTIONS IN DATA PROCESSING**

**Computer Professional Bodies**

The following are some of the prominent computer professional bodies in Nigeria.

1. Nigeria Computer Society (NCS)
2. Institute Of Management Information System. (IMIS)
3. Computer Professional Registration Council of Nigeria (CPN)
4. Information Technology Association of Nigeria (CPN)
5. Nigeria Internet Group (NIG)

**Nigeria Computer Society (NCS)**

The Nigeria Computer Society (NCS) formed in 1978 as Computer Association of Nigeria (COAN) and changed into NCS in 2002 as a aftermath of harmonization with other stakeholders and interest groups. NCS is the umbrella organization of all information Technology Professionals, interest Groups and stakeholders in Nigeria.

Nigerian Computer Society is a place where people interested in Computing Technology within Nigeria gather to share ideas and knowledge. You can become a member by completing the form on line.

**Functions of NCS Are listed below;**

1. To promote the education and training of computer and information scientists, computer engineers, information architects and information technology and system professionals.
2. To actively encourage research in the advancement of computer and information sciences.
3. To promote the interchange of information about the science and arts of information processes.
4. To develop the competence of members and encourage the practice of computing.
5. To promote and protect the professional interest of the member.
6. To work for the recognition by government of ‘Digital Divide’ and to collaborate with relevant governments.

**Information Technology Association of Nigeria (ITAN)**

ITAN was founded in 1991 to promote IT literacy and penetration in Nigeria and to promote interest of the members in the area of policy formulation and negotiations with government on IT policy matters.

ITAN is association of over 350 Information Technology driven companies in Nigeria.

**Functions**

1. The ITAN provides learning opportunities within the engineering sciences research and technology.
2. The goal of the ITAN education programs is to ensure the growth of skill and knowledge among the technician profession and to foster individual commitment to continuing education among ITAN members, the engineering and scientific community and the general public.

**Computer Professional Registration Council of Nigeria**

Computer Professionals Registration Council of Nigeria is a corporate entity charged with the control and supervision of computing profession in the country. The computer professionals were established through Act No. 49 of 1993 promulgated on June 10 and gazette on August 9.

**Functions of CPN**

1. The body is charged with the responsibility of determining the standards of knowledge and skills to be attained by persons seeking to become members of the profession and improve those standards from time to time as circumstances permit.
2. It is also part of the responsibility of CPN to maintain a register of persons seeking to be registered under the Act to practice computing profession and the publication from time to time of the list of such.
3. They conduct exams known as Computer Professionals Examinations to other professionals that are interested in building career in Information Technology (IT). Upon completion of the exam, the person will be registered under a full member category.

**EVALUATION**

1. State five computer Professionals bodies.
2. State two functions each of any two of the Professionals Bodies in question one above.

**Institute for Management of Information System(IMIS)**

The institute for the management of information system exists to promote and support the professional use, application, and management of information system.

The institute for the management of information system is the teaching of independent professional association for both users and developers of today’s information technologies.

**VISION/FUNCTION OF IMIS**

The IMIS vision is to see that information system management is recognized as one of the key professionals influencing the future of the world. Mission is to further the course of professional in the cause of professionalism in the use of information system through life-long learning and to increase the awareness by the public as an individual or as an organization of the advances, implication and potential in information system.

**Nigeria Internet Group (NIG)**

Nigeria Internet Group (NIG), established in 1995, is a non profit, non governmental organization, promoting the internet group. The activities of the group have led to the increase in awareness about the internet within Nigeria. In the largest online community of youth interested in global issues and creating positive changes.

**Objectives**

1. To advance the development of local internet content through the adoption of online services such as government, e-health, learning, commerce.
2. To promote the formulation of appropriate policies and legislation that ensures the growth and development of the internet in Nigeria.
3. To promote the internet as a tool for personal and national development.

**GENERAL EVALUATION**

1. State five computer Professionals bodies.
2. State two functions each of four professionals bodies.

**READING ASSIGNMENT**

Understanding Data Processing for senior secondary schools by Dinehin Victoria pages 303 –305

**WEEKEND ASSIGNMENT**

1. \_\_\_\_ the institute for the management of information system exists to promote and support the professional use, application, and management of information system.

(a) IMIS(b) NIG(c) ITAN(d) CPN

1. ITAN was founded in ……. to promote IT literacy and penetration in Nigeria and to promote interest of the members in the area of policy formulation and negotiations with

government on IT policy matters. (a) 1890 (b)1891(c) 1991 (d)1990

1. \_\_\_\_ is a corporate entity charged with the control and supervision of computing profession in the country. (a) CPRCN (b) IMIS (c) NCS (d) NIG
2. \_\_\_\_ is a non profit, non governmental organization, promoting the internet group.

(a) NIG(b) IMIS(c) CPN(d) ITAN

1. \_\_\_\_ is a place where people interested in Computing Technology within Nigeria gather to share ideas and knowledge.(a) IMIS(b) NCS (c) ITAN (d) CPN

**THEORY**

1. State five computer Professionals bodies.
2. State two functions each of four professionals bodies.