Information technology for statistics

Topics 1: Introduction to IT & Computer

Information technology is the use of computers, software, network and other electronic systems for storing ,processing, transmitting and retrieving information.

Computer- an electronic devices that accept data as an input, processes it according to the instruction, stores the result and produce output.

Importance of information technology

1.Education sector; enhances research using database and statistical tool, virtual classrooms and video lecturers, online libraries and digital contented- learning platforms.

2. Healthcare; electronic medical records for efficient patients' data management, computer - aided surgeries & medical imaging, health research for diseases prediction.

3.Banking and finances; fraud detection using AI &monitoring systems, financial modeling and forecasting, online and mobile banking.

4.Government; through e- government.

5.Agriculture i.e. weather forecasting, market price information, monitoring farms.

6.Transportation; traffic management system, online ticketing for transportation vessels.

7.Business & Economics i.e. e- commerce, automates business processes.

8.Ehances communication through; social media, instant messaging apps e.g whatapps

TOPIC 2:Fundamentals of computer operation

Computer operation- it is how a computer receives input, processes the data, stores information and produce output.

Basics of computer operation

Input- is the process of entering a data or commands into the computer system.

Devices; keyboard, mouse, scanner, microphone, webcam etc.

Processing- this is the operation where the computer interprets, calculate and manipulate the input data.it is performed by CPU.

Storage- it is saving the data for future or immediate use. Devices include

RAM(temporary storage), Mass storage(HDD/SSD) permanent storage.

Output- it is the process of yielding the result of a processed data in a useful form. Devices; monitor, printer, speaker, projector.

OPERATING SYSTEM

Is a set of programs that help in controlling, coordinating , managing and monitoring all of computer resource as efficient as possible. Examples are; windows Xp, windows 7&8, windows Mp, windows 2000- 2005, Linus, Unix, windows Vista, Pd765.

- √   Types; single user- single tasking
    - o   Single user multi- tasking
    - o   Multi- user
    - o   Real- time
    - o   distributed
    - o   mobile

Function of operating system

- ● Error handling and detection
- ● Memory allocation
- ● Job sequencing
- ● Input/output handling
- ● Provide security
- ● Perform multi- tasking

Topic 3.Computer hardware basics

These are physical and tangible parts of a computer system.

Input devices; keyboard, mouse, scanner, microphone, webcam, joystick, barcode reader etc.

Output devices ;monitor, printer, speaker, projector, headphone etc.

Processing devices ;CPU ie control unit, arithmetic logic unit.

<u>Storage device</u> ; Primary storage eg RAM, ROM, cache memory
Secondary storage eg hard disk drive, solid state drive(SSD), flash drive, memory card, CD/DVD.

<u>Communication devices</u> ; enable exchange of data between computer over network eg modem, network interface card , wi-fi router, Bluetooth adapter.

<u>System unit</u> ; located inside the system case. Eg motherboard, processor , power supply unit, hard disk, ram chips, cooling fan, expansion card.

<u>Topic 4 Computer software basics</u>

Collection of programs that instruct a computer on how to peform specific task or operation.

<u>System software</u> controls & manages the hardware and the basic system function. Eg

- Operating system ie windows, macos, linux androids
- Device driver
- Utility program

<u>Application software</u> programs designed for user to perform specific task.

- General purpose eg word , excel, powerpoint, access, publisher.
- Specific purpose eg payroll, hospital management etc.
- Web browsers
- Multimedia
- Games

   <u>Programming software</u> tools used to create and develop other software.

- Compilers
- Interpreters
- Debugger
- Text editor
- Integrated development environment
- Linkers
- Assemblers

Topic 5 Data and data files

Data – refers to raw facts, figures, and statistics collected for reference or analysis.

It can be words, numbers, images etc.

Types of data; numeric data, text data, audio data, video data, image data.

Data files- this is a storage unit that holds data in a computer.