AKANU IBIAM FEDERAL POLYTECHNIC

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ASSIGNMENT

QUESTION 1

a. Define a computer and explain its four major functions.

b. Describe the basic components of a computer system with examples.

QUESTION 2

a. Differentiate between hardware and software.

b. Explain the two main types of software, giving at least three examples each.

QUESTION 3

a. Explain the concept of booting.

b. Describe the step-by-step booting process of a computer system.

QUESTION 4

a. Define file management.

b. Explain five common file operations and their importance.

QUESTION 5

a. Discuss the applications of computers in healthcare or animal health services.

b. Highlight four common computer problems and their solutions.

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COURSE CODE: COM 311

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ANSWERS

QUESTION 1

1a. Definition of a Computer and Its Four Major Functions

A computer is an electronic device that accepts data as input, processes it using a set of instructions (programs), stores the data or results, and produces meaningful information as output. It operates under the control of predefined instructions to perform both simple and complex tasks efficiently, accurately, and at high speed. Computers are widely used in virtually every sector, including education, banking, healthcare, business, and communication, due to their ability to handle large volumes of data.

In modern society, computers are indispensable tools that enhance productivity and decision-making. They are capable of performing repetitive tasks without fatigue, reducing human effort and minimizing errors. From personal devices like laptops and smartphones to large-scale systems like servers and supercomputers, the concept of a computer remains centered on data processing and information generation.

Four Major Functions of a Computer

1. **Input Function:** This involves entering data and instructions into the computer system using input devices such as keyboards, mice, scanners, and microphones.
2. **Processing Function:** The computer processes the input data using the Central Processing Unit (CPU), transforming raw data into meaningful information.
3. **Storage Function:** Computers store data and information either temporarily (RAM) or permanently (hard drives, SSDs, flash drives) for future use.
4. **Output Function:** The processed information is presented to the user through output devices such as monitors, printers, and speakers.

b. Basic Components of a Computer System with Examples

A computer system is made up of several interrelated components that work together to perform tasks efficiently:

1. **Input Devices: These devices are used to enter data into the computer.**

Examples: Keyboard, mouse, scanner, webcam.

2. **Central Processing Unit (CPU)**: Known as the "brain" of the computer, it performs calculations and executes instructions. It consists of:

- Arithmetic Logic Unit (ALU)
- Control Unit (CU)

3. **Memory/Storage Devices**

These store data and programs.

- **Primary Memo**ry: RAM, ROM
- **Secondary Storage**: Hard disk, SSD, USB drives

4. **Output Devices**

These display or produce results.

Examples: Monitor, printer, speakers.

5. **Software**

Programs that instruct the hardware on what to do.

Examples: Operating systems, applications.

QUESTION 2

a. Differentiation Between Hardware and Software

S/N	Aspect	Hardware	Software
1	Meaning	Physical components of a computer	Program and instructions that run on hardware
2	Nature	Tangible (can be touched)	Intangible (cannot be touched)
3	Function	Performs physical operations	Control and directs hardware operations
4	Example	Keyboard, monitor, CPU	Windows OS, MS Word, antivirus
5	Dependency	Cannot function without a software	Cannot run withour hardware
6	Damage	Can be physically damaged	Can be corrupted or deleted

b. Two Main Types of Software with Examples

1. System Software

System software is designed to manage and control the computer hardware and provide a platform for running application software. It ensures that the computer system operates efficiently and coordinates all hardware components.

Examples:

- Operating systems (e.g., Windows, Linux, macOS)
- Device drivers

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- Utility programs (e.g., antivirus, disk cleanup tools)

2. **Application Software**

Application software is designed to help users perform specific tasks such as writing documents, browsing the internet, or managing data.

Examples:

- Microsoft Word

Microsoft Excel

- Web browsers (e.g., Chrome, Firefox)

QUESTION 3

a. Concept of Booting

Booting is the process of starting or restarting a computer system, during which the operating system is loaded into the computer's memory (RAM). It prepares the system to execute commands and allows the user to interact with the computer. Booting is essential because a computer cannot function until its operating system is properly loaded.

There are two main types of booting:

- **Cold Booting**: Starting the computer from a powered-off state.
- **Warm Booting:** Restarting the computer without turning off the power completely.

b. Step-by-Step Booting Process

1. **Power On:** The user presses the power button, supplying electricity to the system.

2. POST (Power-On Self-Test): The system checks hardware components like

RAM, keyboard, and CPU to ensure they are functioning properly.

3. BIOS/UEFI Activation: The firmware initializes hardware and locates the bootable device.

4. Bootloader Execution: The bootloader loads the operating system from storage into RAM.

5. **Operating System Loading:** The OS initializes system files and drivers.

6. U of user Interface Display: The login screen or desktop appears, ready for user interaction.

QUESTION 4

a. Definition of File Management

File management refers to the systematic organization, storage, retrieval, and handling of files in a computer system. It ensures that data is properly arranged so users can easily access, modify, and secure their information. Effective file management enhances productivity and prevents data loss.

In modern computing environments, file management systems allow users to categorize files into folders, assign names, and control access permissions. This structured approach helps in maintaining order, especially when dealing with large volumes of data in organizations and personal systems.

b. Five Common File Operations and Their Importance

1. Creating Files: This involves generating new files to store data.

Importance: Enables users to record and save new information.

2. Opening Files: Accessing existing files for viewing or editing.

Importance: Allows retrieval and use of stored data.

3. Saving Files: Storing changes made to a file.

Importance: Prevents loss of updated information.

4. Deleting Files: Removing unwanted or unnecessary files.

Importance: Frees up storage space and improves organization.

5. Copying/Moving Files: Duplicating or transferring files from one location to another.

Importance: Helps in backup creation and better file organization.

QUESTION 5

a. Applications of Computers in Healthcare (or Animal Health Services)

Computers play a vital role in healthcare by improving efficiency, accuracy, and service delivery. In hospitals, they are used to store patient records, manage appointments, and assist in diagnosis through medical software. Electronic Health Records (EHRs) enable quick access to patient history, reducing medical errors and enhancing treatment

outcomes.In animal health services (veterinary practice), computers are used for tracking animal health records, diagnosing diseases, managing laboratory tests, and monitoring livestock.

Advanced technologies such as imaging systems (X-rays, ultrasound) and telemedicine also rely on computers, improving both human and animal healthcare delivery.

b. Four Common Computer Problems and Their Solutions

1. Slow Performance

Cause: Too many programs running, low memory.

Solution: Close unused programs, upgrade RAM, clean up storage.

2. Virus or Malware Attack

Cause: Downloading infected files or unsafe browsing.

Solution: Install antivirus software and regularly update it.

3. System Crash or Freezing

Cause: Software conflicts or hardware failure.

Solution: Restart the system, update software, check hardware.

4. Hardware Failure (e.g., keyboard or monitor not working)

Cause: Physical damage or loose connections.

Solution: Check connections, repair or replace faulty components.