ASANSOL ENGINEERING COLLEGE – 108

ASANSOL, WEST BENGAL

Department- Computer Science and Engineering

1st Year – 2nd Semester

Session: 2022-2026

Subject: ES-CS-201

NAME:- Pankaj Kumar

UNIVERSITY ROLL NO :-10800122085

Batch:- C3

WHATSAPP NO:-8101865933

Q1. What are the steps of booting?

Ans:- Booting is the process of starting a computer or other electronic device. Following are the general steps involved in booting a computer:

Step-1: Power on :

The first step in booting is to turn on the computer's power supply. This will start the flow of electricity through the computer's components.

Step-2: **POST (Power-On Self Test) :**

After the computer receives power, it runs a built-in diagnostic test called POST. The POST checks the basic hardware components such as the CPU, RAM, and motherboard to ensure they are functioning properly.

Step-3: BIOS/UEFI :

Once the POST completes, the computer's Basic Input/Output System (BIOS) or Unified Extensible Firmware Interface (UEFI) takes over. The BIOS/UEFI is a program stored in a chip on the motherboard that controls the computer's hardware and provides a way for the operating system to communicate with the computer's hardware.

Step-4: Boot loader:

The boot loader is a program that loads the operating system into memory. It is typically located on the computer's hard drive or in firmware. The boot loader determines which operating system to load and starts the process.

Step-5: Operating system:

Finally, the operating system loads into memory and takes control of the computer. The operating system initializes the hardware and starts running the user's programs and applications.

Q2. Define operating system and its Functions.

Ans- An operating system (OS) is a software program that manages and controls the hardware and software resources of a computer. It acts as an intermediary between the user and the computer hardware, providing a platform for other software applications to run on.

The main functions of an OS are :

Resource management: The OS manages the computer's hardware resources, including the central processing unit (CPU), memory, and storage devices, allocating resources to different applications and ensuring that they do not interfere with each other.

Memory management: The OS manages the computer's memory, allocating and deallocating memory to applications as needed. It also ensures that applications do not interfere with each other's memory space.

Overall, the OS provides an abstraction layer between the computer hardware and software applications, enabling efficient and effective use of the computer's resources by multiple applications simultaneously.

Q3. Define algorithm. Write down the different characteristics of an algorithm . Write an algorithm to calculate the swapping of two numbers without using third variable.

Ans:- Algorithms are the set of rules we follow top carry out a certain task. In computer science, algorithms are used to design and optimize computer programs and systems. They are used in tasks such as sorting and searching data . It is a precise and systematic method for solving problems that are too complex for humans to solve by hand.

Let the two num are X and Y

then for swapping

X = X+Y;

Y= X-Y;

X = X-Y;

Q4. Explain different data types & operator used in C language?

Ans:-

Data types of the C language are :-

int: A data type that stores integer values. It can store both positive and negative values.

float: A data type that stores floating-point values. It is used to store decimal numbers.

double: A data type that stores double-precision floating-point values. It can store more decimal places than float.
char: A data type that stores a single character.
void: A data type that represents the absence of a value. It is often used as a return type for functions that do not return a value.

Different types of the operations are:-
Arithmetic operations involve +,-,*,% etc
Incremental operations involve i++, j—etc
Relational operators involve <=,>= etc
Logical operators involve logical AND (&&) and Logical OR(||) etc

Q5. Write down a C program to check whether the number is even or odd.
Ans:-

```
#include<stdio.h>
int main(){
  int x;
  printf("Enter a number: ");
  scanf("%d",&x);
  if(x%2==0)
    printf("%d is even number",x);
  else
    printf("%d is odd number: ");
return 0;
}
```