1. Describes the different types of Computer? (4)

2. What is an Algorithm? Explain the characteristics of an Algorithm? (1+3=4)

3. What do you mean by Input/Output operations? What are the keywords used for the mentioned operation in C? (1+1=2)

4. Why do we use type casting?(2)

5. What do you mean by precedence & associativity of operators? (2)

6. What will be the output of the following program? (1+1=2)

Program 1	Program 2

int main()
{ int a;
  a=5/2;
  printf("%d", a);
}
	int main()
	{ float a;
	      a = 22 * (3.14 + 2) + 5 ;
	      printf("%f", a);
	}

7. If a five-digit number is input through the keyboard, write a program to calculate the sum of its digits.(4)

Solution

1. Different types of Computer are:

a. PC (Personal Computer): It is a single user computer system having moderately powerful microprocessor.

b. Work Station: It is also a single user computer system which is similar to personal computer but have more powerful microprocessor.

c. Mini Computer: It is a multi-user computer system which is capable of supporting hundreds of users simultaneously.

d. Main Frame: It is a multi-user computer system which is capable of supporting hundreds of users simultaneously. Software technology is different from minicomputer.

e. Supercomputer: It is an extremely fast computer which can execute hundreds of millions of instructions per second.

2. An algorithm is a set of steps required to solve a problem. Thus, an algorithm maps a set of input data to a set of output data through a sequence of operation. Characteristics of an Algorithm are:

a. Input: Input data supplied externally(zero or more).

b. Output: Result of the program.

c. Finiteness: In every case, algorithm terminates after a finite number of steps.

d. Definiteness: The steps should be clear and unambiguous.

3. Computers take input from the users and other devices through input devices and perform certain operations and the result is shown to the user's using output devices. Both the operations are called Input/Output operation. There is no keyword for the above operation in C. However, library function such as printf(), scanf(), getchar() and putchar() are used for input-ouput operation in C.

4. Type casting used for following reasons:

a. It is used for variable from one data type to another data type.

b. Type casting enables to avoid the loss of certain information.

5. Operator precedence determines which operator is performed first in an expression with more than one operators with different precedence. For example 10 + 20 * 30 is calculated as 10 + (20 * 30) and not as (10 + 20) * 30.
Associativity is used when two operators of same precedence appear in an expression. Associativity can be either Left to Right or Right to Left. For example '*' and '/' have same precedence and their associativity is Left to Right, so the expression "100 / 10 * 10" is treated as "(100 / 10) * 10".

6. Output for program 1 is 2 and for program 2 is 118.080002.

7. Program :
```c
#include<stdio.h>
int main()
{
    int number, sum=0, num1, num2, num3, num4, num5;
    printf("Enter a five digit number:");
    scanf("%d", &number);
    num1=number%10;
    number=number/10;
    num2=number%10;
    number=number/10;
    num3=number%10;
    number=number/10;
    num4=number%10;
    number=number/10;
    num5=number%10;
    sum=num1+num2+num3+num4+num5;
    printf("Sum of 5 digits is:%d",sum);
    return 0;
}
```