Practical No.6

Aim: Write a python program to convert decimal to binary, octal and hexadecimal using functions

Theory:

A **decimal number** is a number expressed in base 10, which uses digits from 0 to 9 and is commonly used in everyday life. **Binary (base 2)** uses only 0 and 1 and is the fundamental language of computers. **Octal (base 8)** uses digits from 0 to 7 and is sometimes used as a compact form of binary, while **hexadecimal (base 16)** uses digits 0–9 and letters A–F and is widely used in programming and memory addressing. In Python, the built-in functions bin(), oct(), and hex() are used to perform these conversions. These functions return a string with a prefix (0b for binary, 0o for octal, and 0x for hexadecimal), which can be removed using string slicing to obtain the pure number. By using separate **functions** for each conversion, the program becomes modular, readable, and reusable. The user inputs a decimal number, the functions convert it to the respective number systems, and the program displays the results, illustrating the practical use of functions and number system conversions in Python.

Program:

```
def to_binary(n):
    return bin(n)[2:]    # remove '0b'

def to_octal(n):
    return oct(n)[2:]    # remove '0o'

def to_hex(n):
    return hex(n)[2:]    # remove '0x'

num = int(input("Enter a decimal number: "))

print("Binary:", to_binary(num))
print("Octal:", to_octal(num))
print("Hexadecimal:", to_hex(num))
```

Output: Enter a decimal number: 25

Binary: 11001
Octal: 31
Hexadecimal: 19

Result: Thus we have successfully convert the decimal number to

binary,octal,and hexadecimal.