



# Samrat Ashok Technological Institute

VIDISHA (M.P.)

Name Mohit Malviya

Sch. No. 32709

Year 1st year 2nd sem Date 31/05/23

Q1) what do understand by software in computer science and how can you categorize the software?

Ans: In computer science software refers to a collection of programs, data, and instructions that enable a computer system to perform specific tasks or functions. It encompasses all the intangible components of a computer system, including applications, operating system, device drivers, utilities, and more. Software is a crucial component that allows users to interact with and utilize the capabilities of hardware.

Software can be categorized into several types based on different criteria.

(1) System Software → System software provides a platform for running applications and manages computer hardware resources. It includes operating system (e.g. → windows, macos, Linux), device drivers (e.g. → disk, utilities, system diagnostic tools).

(2) Application Software → Application software refers to programs designed to perform specific tasks.

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provide functionality to users. It includes a wide range of software such as word processors, spreadsheets, graphics editors, web browsers, media players, database management system and more.

(Q2) Write five features of python that make it user friendly.

Ans:-

- 1) Easy-to-Read Syntax :- python has a simple and readable syntax making it accessible for beginners and experienced programmers.
- 2) Clear and Expressive code :- python emphasizes clear and concise code.
- 3) Extensive Standard Library :- python comes with a vast collection of modules and functions for various tasks.
- 4) Dynamic Typing and Automatic Memory Management :- python automatically determines variable type and handles memory management.





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5) Large and Supportive Community :- python has a community to support the different streams and field because python has very fast programming language.

Q3) List the various numerical data type in python with example :

Ans →

1) Integer (int) :- It represents whole numbers, position or negative without any decimal point.

ex :-  $x = 10$

$y = -5$

2) float :- It represent real numbers with a decimal point.

ex :-  $a = 3.14$

$b = -0.5$

3) Complex :- It represents numbers in the form of  $a + bj$  where  $a$  and  $b$  are floats and  $j$  represents the imaginary unit.

ex →  $Z = 2 + 3j$

4) Boolean :- It represents the truth values True and False, which are used in logical operations.

ex → is\_true = True  
is\_false = False

5) Decimal :- It represents decimal numbers with a fixed precision.

ex → from decimal import Decimal

d = Decimal('3.14159')

(Q4) Write the output for the following expression is evaluated using a python interpreter.

(1) print(18%6)

(2) if 12 + 5 \* 9 == 153:

(3) print("ITC" + 101) (4) num = 5 > 4

print("true")

print(num)

else:

print("false")





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1) `Print ( 10 % 6 )`

output :- 0

2) `If 12 + 5 * 9 == 153 :`

output :- No output ( there is no print statement )

3) `print ( "ITC" + 101 )`

output :- Error :- Type Error

4) `num = 5 > 4`

`print ( "true" )`

`print ( num )`

`else :`

`print ( "false" )`

output :- true

true

Q5) Let num 1 and num 2 be two non-empty lists write a python command that will append the last element of num 2 to the end of num 1.

2) List is mutable and tuple is immutable. Justify the statement with example.

S  
A  
7  
9

Ans: (i) To append the last element of 'nums 2' to the end of 'nums 1' in python we can use the append() method.

ex → lists are mutable in

ex → nums1.append(nums2[-1])

(ii) list are mutable in python.

example to demonstrate mutability of lists:

```
my_list = [1, 2, 3]
```

```
my_list[0] = 10
```

```
print(my_list)
```

o/p → [10, 2, 3]

(iii) tuples are immutable.

Example to demonstrate immutability of tuples:

```
my_list my_tuple = (1, 2, 3)
```

```
my_tuple[0] = 10
```

o/p → Type Error