

# GUJARAT TECHNOLOGICAL UNIVERSITY

DI -3 SEMESTER – OLD PAPER – W22 TO S25 – QUESTION BANK(English)

**Subject Name & Code:**

**Scripting Language Python- 4330701**

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## Unit 1: Fundamentals of Python

### Repeated Questions:

1. **List/Explain the features of Python.**  
o **Appeared in:** SUM 24 (Q1b, 04 marks), WIN 22 (Q1c, 07 marks), WIN 24 (Q1a, 03 marks), SUM 23 (Q1a, 03 marks)
2. **Explain Type Casting in Python. / What is Type Casting? Explain implicit and explicit type conversion.**  
o **Appeared in:** WIN 22 (Q1b, 04 marks), WIN 23 (Q1a, 03 marks), SUM 24 (Q1c-OR, 07 marks)
3. **Explain Input and Output statements in Python by giving examples.**  
o **Appeared in:** SUM 24 (Q1c, 07 marks), SUM 23 (Q1b, 04 marks)

### Other Important Questions:

1. Give the output of the following Python code:  

```
myStr = 'INDIA IS THE BEST'  
print myStr [15 : : 1]  
print myStr [-10 : -1 : 2]  
print myStr [-1: :-1]  
(SUM 24 - Q1a, 03 marks)
```
2. Differentiate between the == and is operator in Python.  
(SUM 24 - Q1c, 07 marks)
3. Explain membership and identity operators with examples.  
(SUM 24 - Q1c-OR, 07 marks)
4. Explain the basic structure of Python and explain input-output functions available in Python.  
(WIN 23 - Q2a-OR, 03 marks)
5. What are Operators? List out all different types of operators. Explain Special Operator and Membership Operator with example.  
(WIN 23 - Q2a, 03 marks)
6. List out arithmetic operations. Build python code that performs three arithmetic operations.  
(SUM 23 - Q1c, 07 marks)
7. List out the rules for defining variables and Explain the assignment operators of python in details.  
(SUM 23 - Q1c-OR, 07 marks)

8. Demonstrate the use of python operators with a suitable example.  
(WIN 24 - Q1c, 07 marks)
9. Write a program to get change values in Quarter, Dime, Nickels and Pennies, and calculate the value of change in Dollars.  
(WIN 24 - Q1c-OR, 07 marks)
10. Describe the following function with an example: random(), ceil(), max(), lstrip()  
(WIN 24 - Q1b, 04 marks)

## Unit 2: Control Flow Statements

### Repeated Questions:

1. **Explain the for loop with an example.**  
o **Appeared in:** WIN 22 (Q2a, 03 marks), WIN 24 (Q2b, 04 marks), SUM 24 (Q2a, 03 marks)
2. **Explain if, if-else and nested if-else statements with an example. / Explain if-elif-else control structure.**  
o **Appeared in:** WIN 22 (Q1a, 03 marks), WIN 23 (Q1b, 04 marks), WIN 24 (Q2a, 03 marks), SUM 23 (Q2a, 03 marks)
3. **Explain break, continue, and pass statements with a suitable example.**  
o **Appeared in:** WIN 24 (Q2a-OR, 03 marks), SUM 24 (Q2a-OR, 03 marks), SUM 23 (Q2b-OR, 04 marks)

### Other Important Questions:

1. Explain the while loop with a suitable example.  
(WIN 23 - Q2b, 04 marks | SUM 23 - Q2b, 04 marks)
2. Describe the range() function with an example.  
(SUM 24 - Q2b-OR, 04 marks)
3. Define a selection statement. Explain any one in detail.  
(SUM 24 - Q2b, 04 marks)
4. List out different types of control statements in python and explain any one.  
(WIN 22 - Q2a-OR, 03 marks)
5. Explain for loop, while loop, break statement, continue statement and pass statement with an example.  
(WIN 23 - Q4c, 07 marks)
6. Write a program to find whether a given year is a leap year or not.  
(WIN 22 - Q2c, 07 marks | WIN 23 - Q3b, 04 marks)
7. Write a program to find the sum of the following series:  $1 + 1/3 + 1/5 + 1/7 + \dots$  N terms  
(WIN 22 - Q2b, 04 marks)
8. Write a program to print the following pattern:

```

1
2 2
3 3 3
4 4 4 4
5 5 5 5 5

```

(WIN 22 - Q2b-OR, 04 marks)

9. Write a program to convert temperature from Celsius to Fahrenheit.  $F = (9/5) * C + 32$   
(WIN 23 - Q2b, 04 marks)

10. Write a program to calculate the area and volume of a Sphere.

(WIN 23 - Q2b-OR, 04 marks)

11. Make a use of any loop to create the following pattern in python:

\$

\$ \$

\$ \$ \$

\$ \$ \$ \$

\$ \$ \$ \$ \$

(WIN 24 - Q2c, 07 marks)

12. Write a python program to sum the following series:  $1/3 + 3/5 + 5/7 + 7/9 + \dots + 97/99$

(WIN 24 - Q2c-OR, 07 marks)

13. Develop a program that picks a random integer from 1 to 100 and has players guess the number with "WARM!" and "COLD!" hints.

(SUM 24 - Q2c, 07 marks)

14. Develop a program that displays an ASCII character table from ! to ~. Display the ASCII value in decimal and hexadecimal. Display five characters per line.

(SUM 24 - Q2c-OR, 07 marks)

15. Create a Python program to display patterns using loop concept.

(SUM 23 - Q2c, 07 marks | SUM 23 - Q2c-OR, 07 marks)

### Unit 3: Lists, Tuples, Sets and Dictionaries

#### Repeated Questions:

1. **Differentiate between Tuple and List. / Write the difference between Tuple and List.**  
o **Appeared in:** WIN 24 (Q3b, 04 marks), SUM 24 (Q3a-OR, 03 marks)
2. **Write a program that counts the occurrences of each digit in a string.**  
o **Appeared in:** WIN 24 (Q3c, 07 marks), SUM 24 (Q3c, 07 marks)
3. **Explain how to create a Dictionary in Python. Write a program to perform operations on it.**  
o **Appeared in:** SUM 23 (Q3b, 04 marks), SUM 23 (Q3b-OR, 04 marks)

#### Other Important Questions:

1. Write use of list, tuple and set.  
(WIN 24 - Q3a, 03 marks)
2. List operations of tuple (any three) and list (any three).  
(WIN 24 - Q3a-OR, 03 marks)
3. Illustrate set operations with an example (any two).  
(WIN 24 - Q3b-OR, 04 marks)
4. Write a program that is given a dictionary containing the average daily temperature for each day of the week, and prints all the days on which the average temperature was between 40 and 50 degrees.  
(WIN 24 - Q3c-OR, 07 marks)
5. Write a program to perform below operations on tuple:
  - o Create tuple with different data types.
  - o Print tuple items.
  - o Convert tuple into a list.
  - o Convert list into a tuple.
  - o Print tuple items.  
(WIN 23 - Q3a, 03 marks)
6. Write a program to perform below operations on dictionary:
  - o Create a dictionary
  - o Print dictionary items.
  - o Concatenate multiple dictionaries.  
(WIN 23 - Q3a-OR, 03 marks)
7. Write a program to perform below operations on set:
  - o Create two different sets with the data.
  - o Print set items.
  - o Add/remove items in/from a set.

- Perform operations on sets: Union, Intersection, difference.  
(WIN 23 - Q3a-OR, 03 marks)
- 8. Write a program to check whether a given string is a palindrome or not.  
(WIN 23 - Q3c, 07 marks)
- 9. Write a program that checks whether two words are anagrams.  
(WIN 23 - Q3c-OR, 07 marks)
- 10. Write a program to read n numbers from users and calculate the average of those n numbers.  
(WIN 23 - Q3b-OR, 04 marks)
- 11. Write a program to read the marks and assign a grade to a student.  
(WIN 23 - Q3b-OR, 04 marks)
- 12. Differentiate between append() and extend() methods of list.  
(WIN 22 - Q3a, 03 marks)
- 13. Write a program to find the number of times an element occurs in the list.  
(WIN 22 - Q3a, 03 marks)
- 14. Write a program to read-only fill in 0s and 1s into a 4x4 2-dimension list, print the list and find the rows and columns with the most number of 1s.  
(WIN 22 - Q4b, 07 marks | WIN 22 - Q5a, 07 marks)
- 15. Explain addition of an item and modification of an existing item of a dictionary with an example.  
(WIN 22 - Q4a, 04 marks)
- 16. For the given set  $A=\{1,2,3,4,5\}$  and  $B=\{10,2,3,4,50\}$  match the following Statement with output:  $A \cup B$ ,  $A \cap B$ ,  $A \setminus B$ ,  $A - B$ .  
(WIN 22 - Q4a, 04 marks)
- 17. Explain basic tuple operations with an example.  
(WIN 22 - Q4b, 04 marks)
- 18. Write down the properties of a dictionary in Python.  
(SUM 24 - Q3a, 03 marks)
- 19. Explain methods of the Python list with an example.  
(SUM 24 - Q3b, 04 marks)
- 20. Develop a program to repeatedly prompt the user to enter the capital of a state. Assume the states and their capitals are stored in dictionaries.  
(SUM 24 - Q3c-OR, 07 marks)
- 21. Explain how to create a Set in Python by giving an example.  
(SUM 23 - Q3a, 03 marks)
- 22. Explain how to create a tuple in Python by giving an example.  
(SUM 23 - Q3a-OR, 03 marks)
- 23. Write a Python program to perform the below operations on the list:
  - Read n numbers from a user
  - Find positive numbers.

- Find negative numbers.  
(SUM 23 - Q3c, 07 marks)

24. Write a program to perform the below operations on the list:

- Read n numbers from a user
- Number of odd numbers.
- Number of even numbers.  
(SUM 23 - Q3c-OR, 07 marks)

## Unit 4: Functions and Modules

### Repeated Questions:

1. **Explain the creation of a user-defined module and the procedure to import it in another program with an example. / Illustrate creation and import of user-defined module.**  
o **Appeared in:** WIN 22 (Q4c, 07 marks), WIN 24 (Q4b-OR, 04 marks)
2. **Write a program to print the Fibonacci sequence up to n numbers using recursion.**  
o **Appeared in:** WIN 22 (Q3c, 07 marks), WIN 23 (Q5c, 07 marks)
3. **Define function. Why do we need it? / How to Create a function in Python?**  
o **Appeared in:** WIN 23 (Q1c, 07 marks), SUM 24 (Q4a, 03 marks)

### Other Important Questions:

1. List out functions of the datetime module.  
(WIN 22 - Q4a, 03 marks)
2. Write advantages of function in Python.  
(WIN 22 - Q4b, 04 marks)
3. Explain about how to passing parameters to a function and how to returning values from a function with an example.  
(WIN 23 - Q1c-OR, 07 marks)
4. List any six built-in functions of Python.  
(SUM 23 - Q4a, 03 marks)
5. Explain a random module of Python with a suitable example.  
(SUM 23 - Q4b, 04 marks)
6. Create a user-defined module with simple functions for finding the area of a square, circle, and rectangle. Write a program to import the module and access functions defined in the module.  
(SUM 23 - Q4c, 07 marks)
7. Explain the user-defined function of Python with a suitable example.  
(SUM 23 - Q4a-OR, 03 marks)
8. Explain the math module of Python with a suitable example.  
(SUM 23 - Q4b-OR, 04 marks)
9. Create a user-defined module with simple functions for addition, subtraction, multiplication, and division. Write a program to import the module and access functions defined in the module.  
(SUM 23 - Q4c-OR, 07 marks)
10. Define the following terms: function, recursion, and module.  
(WIN 24 - Q4a, 03 marks)
11. Describe methods of the matplotlib module. (any four)  
(WIN 24 - Q4b, 04 marks)
12. Write a recursive user-defined function to find the factorial of a given number.  
(WIN 24 - Q4c, 07 marks)



13. Define Module and gives its advantages. (any four)  
(WIN 24 - Q4a-OR, 03 marks)
14. Write a program that defines a function to return a new list by eliminating the duplicate values in the list.  
(WIN 24 - Q4c-OR, 07 marks)
15. What is a package? How to Create and import a package. Explain with an example.  
(SUM 24 - Q4b, 04 marks)
16. Develop a program to print the dates of all the Sundays in a given year.  
(SUM 24 - Q4c, 07 marks)
17. List out mathematical functions with an example.  
(WIN 23 - Q1c, 07 marks)

## Unit 5: String Processing and File Handling

### Repeated Questions:

1. **Write a program to check whether a given string is a palindrome or not.**  
o **Appeared in:** WIN 23 (Q3c, 07 marks), WIN 24 (Q5c, 07 marks), SUM 23 (Q5c-OR, 07 marks)
2. **Explain various string functions. / Explain below string functions.**  
o **Appeared in:** WIN 22 (Q2c-OR, 07 marks), WIN 23 (Q2c, 07 marks), WIN 23 (Q2c-OR, 07 marks)
3. **List out various file accessing modes and explain each of them. / List file modes with usage.**  
o **Appeared in:** WIN 22 (Q5c, 07 marks), WIN 24 (Q5a-OR, 03 marks)
4. **Write a program that reads a text file and calculates the average word length and sentence length.**  
o **Appeared in:** WIN 24 (Q5c-OR, 07 marks), SUM 24 (Q4c-OR, 07 marks)

### Other Important Questions:

1. Explain the following functions: (i) math.exp() (ii) math.floor() (iii) math.pow()  
(WIN 22 - Q5a, 03 marks)
2. Write a program to plot a sine wave using matplotlib.  
(WIN 22 - Q5b, 04 marks)
3. List out functions for writing to file operation and explain each.  
(WIN 22 - Q5a-OR, 03 marks)
4. Explain the following string functions with an example: (i) endswith() (ii) find()  
(WIN 22 - Q5b-OR, 04 marks)
5. Write a program to read a date in the format DD/MM/YYYY and print the same date in MM-DD-YYYY format.  
(WIN 22 - Q5c-OR, 07 marks)
6. Explain the following string functions: len, max, min, isalpha, isdigit, isalnum, isidentifier, islower, isupper, isspace, endswith, startswith, find, rfind, count  
(WIN 23 - Q2c, 07 marks)
7. Explain the following string functions: capitalize, lower, upper, title, swapcase, replace, lstrip,rstrip, strip  
(WIN 23 - Q2c-OR, 07 marks)
8. Explain file handling basic Python function to open and close the text file.  
(SUM 23 - Q5a, 03 marks)
9. Explain to access string elements using the index operator with a suitable example.  
(SUM 23 - Q5b, 04 marks)
10. Write a Python program that reads a text file and counts the occurrences of each alphabet in the file. The program should prompt the user to enter the filename.  
(SUM 23 - Q5c, 07 marks)
11. Explain the usage of given file handling methods in Python: read(), readline(), readlines()  
(SUM 23 - Q5a-OR, 03 marks)
12. Explain the usage of given string methods in Python: islower(), isupper(), isdigit(), isalnum()  
(SUM 23 - Q5b-OR, 04 marks)
13. List out testing functions of string with syntax. (any six)  
(WIN 24 - Q5a, 03 marks)
14. Describe file handling functions to read from a file and to write in a file. (any two for each)  
(WIN 24 - Q5b, 04 marks)
15. Discuss indexing and slicing operation for string manipulation with an example in Python.  
(WIN 24 - Q5b-OR, 04 marks)
16. Write a program to check whether a given string is a palindrome or not.  
(WIN 24 - Q5c, 07 marks)
17. Give the output of the following Python code based on string slicing.  
(SUM 24 - Q1a, 03 marks)

18. Explain the following function with an example: max(), lstrip()  
(WIN 24 - Q1b, 04 marks)
19. Write an automated censor program that reads the text from a file and creates a new file where all of the four-letter words have been replaced by "\*\*\*\*".  
(WIN 22 - Q3b, 07 marks)
20. Explain the following file handling functions: Open, close, read, readline, readlines, write, append, writelines  
(WIN 23 - Q5a, 03 marks)
21. Explain lists in Python. Write down all operations performed on a list.  
(WIN 23 - Q5b, 04 marks)
22. How to access string elements using the index operator? Explain it with an example.  
(WIN 23 - Q5a-OR, 03 marks)
23. Explain dictionaries in Python. Write down all operations on dictionaries.  
(WIN 23 - Q5b-OR, 04 marks)
24. Write a program that defines a function to determine whether the input number n is prime or not.  
(WIN 23 - Q5c-OR, 07 marks)

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