1. str='Hello World' output:hELLOW wORLD

```
input_str = "Hello World"
print((lambda s: s.swapcase())(input_str))
```

```
hELLO wORLD
```

2. // and / difference

```
a = 10/2
print(a)

b = 10//2
print(b)
```

```
5.0
5
```

3. Swapcase

```
ss="Adarsh"
ss.swapcase()
'yefgiwb'
```

```
'yefgiwb'
```

4. Can we do tuple Comprehension?If not why

Ans : Tuple comprehension isn't possible in Python due to tuples being fixed. This means that after creation, their elements remain fixed and cannot be altered.

5. sort and sorted Difference

Ans: sort:- sort will sort the original list sorted:-sorted will create the new list and then it will sort the new list

6. Current time stamp

```
import time
import datetime

date = datetime.datetime.now()

print(date)
```

```
2024-05-24 06:49:50.846139
```

7. can function passed through another function

Ans : in python we can use a function in oter function. This is also known as High order functions

8. format string and raw string example

```
a = 'Adarsh'

print(f'{a}')
```

```
Adarsh
```

```
print(r"{a}")
```

```
{a}
```

9. Generator vs Decorators

Ans : Generators:

1. Generators are functions that can generate a sequence of values over time.
2. Generators produce values one at a time, only when needed, which makes them memory efficient for handling large datasets or infinite sequences.

Decoratros :

1. Decorators are functions that modify the behavior of other functions or methods.
2. They allow you to wrap another function or method and perform additional actions before or after its execution.

10. Function Annotation

Ans : Function annotation is a feature in python that allows to attach metadata to the parameters and return type of a function.

11. Walrus operator

Ans : The operator ":=", it is an assignment operator

12. Initialize dictionary with defalut value

```
intial_value = 0
keys = ['a', 'b', 'c']
dict_1 = {key: intial_value for key in keys}

print(dict_1)
```

```
{'a': 0, 'b': 0, 'c': 0}
```

13. Pandas : difference between Heads and Tail

Ans : these are the methods used to view the first and last few rows of a DataFrame by default they execute first 5 rows in both heads and tails syntax : head(), tail()

14. Pandas multiple index

15. Pandas reindex

Ans : the "reindex()" method is used for the DataFrame to a new index, by filling in missing values with appropriate values

ex : df_reindexedd = df.reindex(['abc','def'])

16. Pandas merge vs join

Ans : Merge : 1. It can handle merging on multiple keys

2. It can merge DataFrames on columns with different names.

Join : 1. It only allows for joining on the indices of the DataFrames.

2. By default, it performs a left join.

17. How to Optimize in pandas

Ans : There are many ways to optimize in pandas, some of them are

1. Categorical Data Types: Convert data with limited unique values to categories.
2. Indexing and Slicing: Utilize efficient data access techniques.
3. Avoid Iteration: Minimize loops; use pandas' apply, map, or list comprehensions.

18. What is TimeDelta in pandas

Ans : Timedelta in pandas represents the difference between two datetime objects. syntax : "pd.Timedelta()"

19. Pandas Concat vs Append

Ans : concat

1. Puts multiple DataFrames together, arranges like a stack
2. Works with many DataFrames at the same time

Append :

1. Adds one DataFrame onto another
2. Gives new dataframe without changing the previous thing

20. Rolling mean

Ans : we use the "rolling()" method to apply a moving window calculation on the value column of the df DataFrame.

21. How to do Sum operation in Pandas

```
import pandas as pd
df = pd.DataFrame({'A': [1, 2, 3], 'B': [4, 5, 6]})
total_sum = df.sum()
print(total_sum)
```

```
A     6
B    15
dtype: int64
```

22. pickling in python

Ans : Pickling in Python refers to the process of converting a Python object into a byte stream, which can then be saved to a file or sent over a network.

23. pandas group by and sort by multiple columns

Ans : In pandas, you can use the groupby() function to group DataFrame rows based on one or more columns, sort_values() to sort the grouped data by one or more columns.