Question no.1

In [ ]:
```
List: An ordered collection of items (elements) that is mutable (you can change,
```

In [9]:
```
my_list = [1, 2, 3, "apple"]
print(my_list)
```

```
[1, 2, 3, 'apple']
```

In [ ]:
```
Tuple: An ordered collection of items that is immutable (you cannot modify eleme
```

In [10]:
```
my_tuple = (1, 2, 3, "apple")
print(my_tuple)
```

```
(1, 2, 3, 'apple')
```

Question no.2

In [12]:
```
#Mutability means you can change the content of the object without changing its
nums = [1, 2, 3]
nums[1] = 10
print(nums)
```

```
[1, 10, 3]
```

Question no.3

In [14]:
```
fruits = ["apple", "banana", "cherry"]
print(fruits[0])
print(fruits[-1])
print(fruits[-2])
```

```
apple
cherry
banana
```

Question no.4

In [16]:
```
nums = [10, 20, 30, 40, 50]
print(nums[1:4])
print(nums[:3])
print(nums[2:])
print(nums[::-1])
```

```
[20, 30, 40]
[10, 20, 30]
[30, 40, 50]
[50, 40, 30, 20, 10]
```

Question no.5

In [15]:
```
fruits = ["apple"]
fruits.append("banana")
print(fruits)
fruits.insert(1, "cherry")
print(fruits)
```

```
['apple', 'banana']
['apple', 'cherry', 'banana']
```

Question no.6

In [17]:
```
nums = [1, 2, 3, 2]
nums.remove(2)
print(nums)
```

```
[1, 3, 2]
```

In [18]:
```
nums = [10, 20, 30]
value = nums.pop(1)
print(value)
print(nums)
```

```
20
[10, 30]
```

Question no.7

In [19]:
```
nums = [1, 2, 2, 3]
print(nums.index(2))
print(nums.count(2))
```

```
1
2
```

Question no.8

In [21]:
```
nums = [3, 1, 4]
nums.sort()
print(nums)
nums.sort(reverse=True)
print(nums)
```

```
[1, 3, 4]
[4, 3, 1]
```

Question no.9

In [22]:
```
nums = [1, 2, 3]
nums.reverse()
```

```
print(nums)
```

```
[3, 2, 1]
```

Question no.10

In [23]:
```
nested = [[1, 2], [3, 4]]
print(nested[0])
print(nested[0][1])
```

```
[1, 2]
2
```

Question no.11

In [24]:
```
squares = [x**2 for x in range(5)]
print(squares)
```

```
[0, 1, 4, 9, 16]
```

Question no.12

In [25]:
```
word = "hello"
letters = list(word)
print(letters)
```

```
['h', 'e', 'l', 'l', 'o']
```

Question no.13

In [ ]:
```
nums = [10, 20, 30, 40]
del nums[1]
del nums[1:3]
del nums
```

In [ ]:
```
#Question no.14
```

In [ ]:
```
nums = [3, 1, 4]
print(sorted(nums))
print(nums)
```

Question no.15

Using slicing

my_list = [1, 2, 3, 4, 5] reversed_list = my_list[::-1] print("Reversed using slicing:", reversed_list)

Using a loop

my_list = [1, 2, 3, 4, 5] reversed_list = [] for i in range(len(my_list) - 1, -1, -1): reversed_list.append(my_list[i]) print("Reversed using loop:", reversed_list)

Question no.16

In [27]:
```
my_list = [1, 2, 3, 2, 4, 2, 5]
element_to_remove = 2
new_list = [x for x in my_list if x != element_to_remove]
print("List after removing", element_to_remove, ":", new_list)
```

```
List after removing 2 : [1, 3, 4, 5]
```

Question no.17

In [28]:
```
numbers = [10, 20, 4, 45, 99]
unique_numbers = list(set(numbers))  # Remove duplicates
unique_numbers.sort()
if len(unique_numbers) >= 2:
    print("Second largest:", unique_numbers[-2])
else:
    print("Not enough unique numbers")
```

```
Second largest: 45
```

Question no.18

In [29]:
```
even_numbers = [x for x in range(1, 21) if x % 2 == 0]
print("Even numbers:", even_numbers)
```

```
Even numbers: [2, 4, 6, 8, 10, 12, 14, 16, 18, 20]
```

Question no.19

In [30]:
```
numbers = [1, 3, 7, 8, 2, 10, 5]
greater_than_5 = [x for x in numbers if x > 5]
print("Numbers greater than 5:", greater_than_5)
```

```
Numbers greater than 5: [7, 8, 10]
```

Question no.20

In [31]:
```
my_list = [1, 2, 3, 4, 5, 6, 7, 8, 9]
start, end = 2, 5  # Remove index 2 to 4 (end index is exclusive)
del my_list[start:end]
print("List after removing range:", my_list)
```

```
List after removing range: [1, 2, 6, 7, 8, 9]
```

Question no.21

In [32]:
```
words = ["apple", "banana", "cherry"]
lengths = [len(word) for word in words]
print("Lengths of words:", lengths)
```

```
Lengths of words: [5, 6, 6]
```

Question no.22

In [33]:
```
def remove_in_place(lst, value):
    while value in lst:
        lst.remove(value)

numbers = [1, 2, 3, 2, 4, 2, 5]
remove_in_place(numbers, 2)
print("After removal:", numbers)
```

```
After removal: [1, 3, 4, 5]
```

Question no.23

In [34]:
```
string = "Hello World"
char_list = list(string)
char_list.reverse()
reversed_string = ''.join(char_list)
print("Reversed string:", reversed_string)
```

```
Reversed string: dlroW olleH
```

Question no.24

In [35]:
```
sentence = "Python is awesome"
words = sentence.split()
vowels = "aeiouAEIOU"
count = 0

for word in words:
    for char in word:
        if char in vowels:
            count += 1

print("Total vowel count:", count)
```

```
Total vowel count: 6
```

In [ ]:
```

```

In [ ]:
```

```