Computing Fundamentals using Python

SUBJECT CODE : UQ25CA151A

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Computer Applications

Applications

List:

- Storing multiple related items (e.g., list of student names, marks, etc.).
- Dynamic data handling where items need to be inserted, deleted, or updated.
- Used for stack and queue implementations.
- Iterating over collections (loops, processing data).

Applications

Tuples:

- When data should not be modified (read-only collections).
- Used as keys in dictionaries (since tuples are hashable).
- Returning multiple values from a function.
- Used in coordinates, database records, or settings/configurations.

Applications

Sets:

- Removing duplicates from data.
- Mathematical operations: union, intersection, difference.
- Fast membership testing (in operation is very quick in sets).
- Useful in data science for unique values.

Applications

Dictionary:

- Mapping relationships
- Fast data lookup by key.
- Storing structured data (like JSON).Used in configurations, caching, word-frequency counters.

Multiple choice questions

1. What will be the output of the following code?

```
lst = [1, 2, 3]
lst.append([4, 5])
print(lst)
```

a) [1, 2, 3, 4, 5]
b) [1, 2, 3, [4, 5]]
c) [1, 2, 3]
d) Error

Answer: b

Multiple choice questions

2. Which method is used to remove and return the last element of a list?

a) remove()
b) delete()
c) pop()
d) discard()

Answer: c

Multiple choice questions

3. What will be the output?

```
t = (10, 20, 30, 20, 40)
print(t.count(20))
```

a) 1
b) 2
c) 3
d) Error

Answer: b

Multiple choice questions

4. Which of the following is NOT a tuple method?

a) index()
b) count()
c) append()
d) None of the above

Answer: c

Multiple choice questions

5. What is the output of this code?

```
s = {1, 2, 3}
s.add(2)
print(s)
```

a) {1, 2, 3, 2}
b) {1, 2, 3}
c) [1, 2, 3]
d) Error

Answer: b

Multiple choice questions

6. Which method removes an element from a set but does NOT raise an error if the element is missing?

a) remove()
b) discard()
c) pop()
d) delete()

Answer: b

Multiple choice questions

7. What will be the output?

```
d = {"a": 1, "b": 2}
print(d.get("c"))
```

a) 0
b) None
c) Error
d) "c"

Answer: b

Multiple choice questions

8. Which method returns all key-value pairs in a dictionary?

a) keys()
b) values()
c) items()
d) pairs()

Answer: c

Multiple choice questions

9. Which of the following data types supports the append() method?

a) List
b) Tuple
c) Set
d) Dictionary

Answer: a

Multiple choice questions

10. What will be the output of the following code?

```
data = {"x": 10, "y": 20}
data.update({"y": 50, "z": 30})
print(data)
```

a) {"x": 10, "y": 20, "z": 30}
b) {"x": 10, "y": 50, "z": 30}
c) {"x": 10, "y": [20, 50], "z": 30}
d) Error

Answer: b

Computing Fundamentals using Python

Scenario based questions

1. A teacher has stored the marks of students in a list. She realizes she entered one student's marks twice by mistake.
   Which list method should she use to remove the duplicate entry, and how would she remove only the first occurrence?

2. A company stores employee ID numbers in a tuple since they should not be changed. The HR wants to find how many times a specific employee ID appears in the tuple.
   Which tuple method can be used to solve this problem?

Scenario based questions

3. A school wants to prepare a list of unique sports played by students from two different classes. They already have two sets: one for Class A and another for Class B.
   Which set method should they use to combine both sets while removing duplicates?

4. An e-commerce site stores product details in a dictionary with product IDs as keys and prices as values. A customer buys a product, and the system needs to remove that product from the dictionary.
   Which dictionary method should be used to remove the key-value pair safely?

THANK YOU

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