

BRAC UNIVERSITY
Department of Computer Science and Engineering

Examination: Final
Duration: 90 Minutes
No. of Questions: 3

CSE 111: Programming Language II

Semester: Spring 2023
Full Marks: 30
No. of Pages: 3

Name: (Please write in CAPITAL LETTERS)	ID:	Section:
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A

- ✓ Use the back **part** of the answer script for rough work. **No washroom breaks.**
- ✓ At the end of the exam, put the question **paper** inside the answer script and **return both.**

Question – 1: CO4 [10 Points]

1	<code>class A:</code>
2	<code> temp = 5</code>
3	<code> def __init__(self):</code>
4	<code> self.y = A.temp - 2</code>
5	<code> self.sum = self.temp + 1</code>
6	<code> A.temp += 3</code>
7	<code> self.methodA(3, 6)</code>
8	<code> def methodA(self, m, n):</code>
9	<code> x = self.y + 4 + n</code>
10	<code> self.sum = x + self.temp</code>
11	<code> self.y = self.y + m + (A.temp)</code>
12	<code> print(x, self.y, self.sum)</code>
13	<code>class B(A):</code>
14	<code> def __init__(self, obj=None):</code>
15	<code> super().__init__()</code>
16	<code> self.temp = self.temp + A.temp</code>
17	<code> self.sum = 5 + self.temp + A.temp</code>
18	<code> def methodA(self, m, n, x=5):</code>
19	<code> self.y = self.y + n + (A.temp)</code>
20	<code> x = x + 3 + m</code>
21	<code> self.sum = self.sum + x + self.temp</code>
22	<code> print(x, self.y, self.sum)</code>
23	<code> def methodB(self, m, n):</code>
24	<code> y = self.temp + self.y + n</code>
25	<code> A.temp = m + self.y + n</code>
26	<code> super().methodA(n, m)</code>
27	<code> self.methodA(n, m)</code>
28	<code> self.sum = self.y + y + A.temp</code>
29	<code> print(self.temp , y, self.sum)</code>

Illustrate the output of the following statements:

```
b1 = B()  
b1.methodB(5, 6)
```

Output:

Out1	Out2	Out3
		72
	39	151

Question 2: CO5 [10 Points]

Design the **ChefsCounter** class with necessary properties such that the following output is produced for the given driver code.

[Hint: Unless mentioned explicitly, a branch can take 5 reservations by default.]

```
print("=====1=====")
branch1 = ChefsCounter("Gulshan")
print("=====2=====")
branch1.reserve("Sam", "Paul")
print("=====3=====")
branch1.reservation_info()
print("=====4=====")
branch1.reserve("John", "Robin", "Billy",
"Robert")
print("=====5=====")
branch1.reservation_info()
print("=====6=====")
branch2 = ChefsCounter("Dhanmondi",7)
print("=====7=====")
branch2.reserve("Ben", "Alice", "Fred")
print("=====8=====")
branch2.reservation_info()
print("=====9=====")
branch2.reserve("Tom", "Ken", "Garet",
"Miles", "Taylor")
print("=====10=====")
branch2.reservation_info()
print("=====11=====")
branch3 = ChefsCounter.createNewBranch("100
feet")
print("=====12=====")
branch3.reserve("Harry", "Bob", "Jenny")
print("=====13=====")
branch3.reservation_info()
print("=====14=====")
print("Reservation Information of All
Branches:",ChefsCounter.reservation)
```

Output:

```
=====1=====
The Gulshan branch of Chef's Counter is
open for reservation!
=====2=====
=====3=====
Customers who reserved in Gulshan branch:
Sam, Paul
=====4=====
Sorry Robert, 5 people already made a
reservation in this branch.
=====5=====
Customers who reserved in Gulshan branch:
Sam, Paul, John, Robin, Billy
=====6=====
The Dhanmondi branch of Chef's Counter is
open for reservation!
=====7=====
=====8=====
Customers who reserved in Dhanmondi
branch:
Ben, Alice, Fred
=====9=====
Sorry Taylor, 7 people already made a
reservation in this branch.
=====10=====
Customers who reserved in Dhanmondi
branch:
Ben, Alice, Fred, Tom, Ken, Garet, Miles
=====11=====
The 100 feet branch of Chef's Counter is
open for reservation!
=====12=====
=====13=====
Customers who reserved in 100 feet branch:
Harry, Bob, Jenny
=====14=====
Reservation Information of All Branches:
{'Gulshan': ['Sam', 'Paul', 'John',
'Robin', 'Billy'], 'Dhanmondi': ['Ben',
'Alice', 'Fred', 'Tom', 'Ken', 'Garet',
'Miles'], '100 feet': ['Harry', 'Bob',
'Jenny']}
```

Question 3: CO5 [10 Points]

Implement the “**BusTicket**” class derived from the “**Ticket**” class with the necessary properties so that the following output is produced for the given code.

[Hint:

1. Ticket ID is calculated by concatenating the bus name, a “-”, and number of tickets being created.
2. Fare calculation needs to be done inside the “**calculate_fare()**” method and the calculated fare must be assigned to the “**price**” variable inherited from the Ticket class.
3. Make sure you reuse the parent class’s code wherever possible.]

```
class Ticket:
    route_distance = {"Route A":400, "Route B":425,
"Route C":350}
    fare_per_km = 20

    def __init__(self, route, journeyDate, price = 0):
        self.route = route
        self.journeyDate = journeyDate
        self.__price = price
    def setPrice(self, price):
        self.__price = price
    def getPrice(self):
        return self.__price
    def ticket_details(self):
        return f"Route: {self.route}\nJourney Date:
{self.journeyDate}"
```

#Driver Code

```
ticket1 = BusTicket("Route A", "30 April, 2023",
"Nabil Enterprise", "F2")
print("Total ticket(s):", BusTicket.total_tickets)
print("1=====")
ticket1.calculate_fare()
print("2=====")
ticket1.ticket_details()
print("3=====")
ticket1.make_payment()
print("4=====")
ticket1.ticket_details()
print("5=====")
ticket2 = BusTicket("Route C", "26 April, 2023",
"Hanif Enterprise", "A2")
print("Total ticket(s):", BusTicket.total_tickets)
print("6=====")
ticket2.calculate_fare()
print("7=====")
ticket2.make_payment()
print("8=====")
ticket2.ticket_details()
```

Output:

```
Total ticket(s): 1
1=====
Ticket fare is calculated
successfully.
2=====
Ticket ID: Nabil Enterprise-1
Route: Route A
Journey Date: 30 April, 2023
Bus Name: Nabil Enterprise
Seat No: F2
Price(tk): 8000
Status: Not Paid
3=====
Payment successful.
4=====
Ticket ID: Nabil Enterprise-1
Route: Route A
Journey Date: 30 April, 2023
Bus Name: Nabil Enterprise
Seat No: F2
Price(tk): 8000
Status: Paid
5=====
Total ticket(s): 2
6=====
Ticket fare is calculated
successfully.
7=====
Payment successful.
8=====
Ticket ID: Hanif Enterprise-2
Route: Route C
Journey Date: 26 April, 2023
Bus Name: Hanif Enterprise
Seat No: A2
Price(tk): 7000
Status: Paid
```