Answer Sheet

Name: _____

Language:

- [ ] Java
- [ ] Python
- [ ] JavaScript

SQL Answers:

Question 1:

```
  -- Task A:


cursor.execute("""
CREATE TABLE IF NOT EXISTS students (
   id INT PRIMARY KEY AUTO_INCREMENT,
   name VARCHAR(100) NOT NULL,
   age INT,
   city VARCHAR(100)
)
""")

  -- Task B:


cursor.execute("INSERT INTO students (name, age,
city) VALUES ('John', 20, 'New York')")
cursor.execute("INSERT INTO students (name, age,
city) VALUES ('Sarah', 22, 'Boston')")

-- Task C:
cursor.execute("SELECT * FROM students WHERE
age > 21")
results = cursor.fetchall()

print("Students older than 21:")
```

```
for row in results:
    print(row)

cursor.close()
conn.close()
```

Question 2:

```
-- Task A:


cursor.execute("""
UPDATE students
SET age = 23
WHERE name = 'Sarah'
""")
conn.commit()
print(f"{cursor.rowcount} record(s) updated
successfully.\n")

-- Task B:


cursor.execute("""
SELECT city, COUNT(*) AS student_count
FROM students
GROUP BY city
""")
print("Number of students per city:")
for city, count in cursor.fetchall():
    print(f"{city}: {count}")



-- Task C:
cursor.execute("""
SELECT name
FROM students
ORDER BY name ASC
""")
print("Students names in alphabetical order:")
for (name,) in cursor.fetchall():
    print(name)
```

```
cursor.close()
conn.close()
```

Programming Answers:

Question 1:

```
def add(num1, num2):
    return num1 + num2

def subtract(num1, num2):
    return num1 - num2

def multiply(num1, num2):
    return num1 * num2

def divide(num1, num2):
    if num2 == 0:
        return "Division by zero is not allowed."
    else:
        return num1 / num2

print("Simple Calculator")
print("Operations: + (add), - (subtract), *
(multiply), / (divide)\n")

choice = input("Enter operation (+, -, *, /): ")

if choice not in ['+', '-', '*', '/']:
    print("Invalid operation!")
else:
    try:
        first_number = float(input("Enter first number:
"))
        second_number = float(input("Enter second
number: "))
    except ValueError:
```

```
        print("Invalid number! Please enter numeric
values.")
    else:
        if choice == '+':
            print(f"Result: {first_number} +
{second_number} = {add(first_number,
second_number)}")

        elif choice == '-':
            print(f"Result: {first_number} -
{second_number} = {subtract(first_number,
second_number)}")

        elif choice == '*':
            print(f"Result: {first_number} *
{second_number} = {multiply(first_number,
second_number)}")

        elif choice == '/':
            result = divide(first_number,
second_number)
            print(f"Result: {first_number} /
{second_number} = {result}")
```

Question 2:

```
score1 = float(input("Enter first exam score:  "))
score2 = float(input("Enter second exam score:  "))
score3 = float(input("Enter third exam score:  "))

average = (score1 + score2 + score3) / 3
print(f"Average score: {average:.2f}")

if average >= 90:
    grade = 'A'
elif average >= 80:
    grade = 'B'
elif average >= 70:
    grade = 'C'
elif average >= 60:
    grade = 'D'
else:
    grade = 'F'

print(f"Grade: {grade}")
```

Question 3:

```
cart = []

def add_item(name, price, quantity=1):
    cart.append((name, price, quantity))
    print(f"Added: {quantity} × {name} (${price:.2f}
each)")

def remove_item(name):
    global cart
    cart = [item for item in cart if item[0].lower() !=
name.lower()]
    print(f"Removed all {name} from cart")

def calculate_total():
    subtotal = sum(price * qty for _, price, qty in
cart)
    return subtotal

def total_price():
    subtotal = calculate_total()

    if subtotal > 100:
```

```
        discount = subtotal * 0.10
        final = subtotal - discount
        print(f"Subtotal: ${subtotal:.2f}")
        print(f"10% discount applied: -
${discount:.2f}")
        print(f"Total Price: ${final:.2f}")
    else:
        print(f"Total: ${subtotal:.2f} (no discount)")

    return final if subtotal > 100 else subtotal

def show_cart():
    if not cart:
        print("Cart is empty.")
        return
    print("\nCart contents:")
    for name, price, qty in cart:
        print(f"- {name}: {qty} × ${price:.2f} = ${price *
qty:.2f}")
    total_price()
```

Question 4:

```
import random

secret_number = random.randint(1, 10)
tries = 3

print("I'm thinking of a number between 1 and
10.")
print(f"You have {tries} tries.\n")

while tries > 0:
    try:
        guess = int(input("Enter your guess: "))
    except ValueError:
        print("Please enter a valid number!")
        continue

    if guess < 1 or guess > 10:
        print("Please guess a number between 1 and
10.")
        continue
```

```
    tries -= 1

    if guess == secret_number:
        print("Congratulations! You won!")
        break
    elif guess < secret_number:
        print("Too low!")
    else:
        print("Too high!")

    if tries > 0:
        print(f"You have {tries} {'try' if tries == 1 else
'tries'} left.\n")
    else:
        print(f"Game over! The number was
{secret_number}.")
```