Programming Assignment-15

Question 1:

Ans.

```
def divisible_by_5_and_7(n):
    for num in range(0, n + 1):
        if num % 5 == 0 and num % 7 == 0:
            yield num

# Example
n = int(input("Enter the upper limit: "))
output = [str(num) for num in divisible_by_5_and_7(n)]
print(",".join(output))
```

Example:

Input: 100

Output: 0,35,70

Question 2:

Ans.

```
def even_numbers(n):
    for num in range(0, n + 1):
        if num % 2 == 0:
            yield num

# Example
n = int(input("Enter the upper limit: "))
output = [str(num) for num in even_numbers(n)]
print(",".join(output))
```

Example:

Input: 10

Output: 0,2,4,6,8,10

Question 3:

Ans.

```
def fibonacci(n):
    fib_seq = [0, 1]
    [fib_seq.append(fib_seq[i - 1] + fib_seq[i - 2]) for i in range(2, n + 1)]
    return fib_seq

# Example
n = int(input("Enter the value of n: "))
output = fibonacci(n)
print(",".join(map(str, output)))
```

Example:

Input: 7

Output: 0,1,1,2,3,5,8,13

Question 4:

Ans.

```
def extract_username(email):
    username = email.split("@")[0]
    return username
# Example
email = input("Enter the email address: ")  # e.g. "john@google.com"
username = extract_username(email)
print("Username:", username)
```

Example:

Input: `john@google.com`

Output: `john`

Question 5:

Ans.

```
class Shape:
    def area(self):
        return 0


class Square(Shape):
    def __init__(self, length):
        self.length = length

    def area(self):
        return self.length * self.length

# Example
square = Square(5)
print("Area of square:", square.area())  # Output: 25

shape = Shape()
print("Area of shape:", shape.area())  # Output: 0
```

This solution creates a base class Shape with a default area of 0, and a subclass Square that overrides the area() method to calculate the area of a square based on its length.