Q1. Write a Python program to check if the given number is a Disarium Number?

```
def is_disarium_number(number):
    str_number = str(number)
    digit_sum = 0
    for i in range(len(str_number)):
        digit_sum += int(str_number[i]) ** (i+1)
    if digit_sum == number:
        return True
    else:
        return False

num = 175

if is_disarium_number(num):
    print(num, "is a Disarium number.")
else:
    print(num, "is not a Disarium number.")
```

Q2. Write a Python program to print all disarium numbers between 1 to 100?

```
def is_disarium_number(number):
    str_number = str(number)
    digit_sum = 0
    for i in range(len(str_number)):
        digit_sum += int(str_number[i]) ** (i+1)
    if digit_sum == number:
        return True
    else:
        return False
```

```
start = 1
end = 100

disarium_numbers = []
for num in range(start, end+1):
    if is_disarium_number(num):
        disarium_numbers.append(num)

print("Disarium numbers between", start, "and", end, "are:")
for num in disarium_numbers:
    print(num)
```

Q3. Write a Python program to check if the given number is Happy Number?

```
def is_happy_number(number):
    seen_numbers = set()
    while number != 1:
        if number in seen_numbers:
            return False
        seen_numbers.add(number)
        number = sum(int(digit)**2 for digit in str(number))
    return True

# Example usage
num = 19

if is_happy_number(num):
    print(num, "is a Happy number.")
else:
    print(num, "is not a Happy number.")
```

Q4. Write a Python program to print all happy numbers between 1 and 100?

```
def is_happy_number(number):
    seen_numbers = set()
    while number != 1:
        if number in seen_numbers:
            return False
        seen_numbers.add(number)
        number = sum(int(digit)**2 for digit in str(number))
    return True

start = 1
end = 100

happy_numbers = []
for num in range(start, end+1):
    if is_happy_number(num):
        happy_numbers.append(num)

print("Happy numbers between", start, "and", end, "are:")
for num in happy_numbers:
    print(num)
```

Q5. Write a Python program to determine whether the given number is a Harshad Number?

```
def is_harshad_number(number):
    # Calculate the sum of the digits
    digit_sum = sum(int(digit) for digit in str(number))

    # Check if the number is divisible by the sum of its digits
    if number % digit_sum == 0:
```

```
        return True
    else:
        return False

# Example usage
num = 18

if is_harshad_number(num):
    print(num, "is a Harshad number.")
else:
    print(num, "is not a Harshad number.")
```