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BATCH = 80

Q1. Check whether the given number is divisible by 3 and 5.

```
num = int(input("Enter a number: "))

if num % 3 == 0 and num % 5 == 0:
    print("Number is divisible by both 3 and 5")
else:
    print("Number is not divisible by both 3 and 5")
```

```
Enter a number: 15
Number is divisible by both 3 and 5
```

Q2. Check whether a given number is multiple of five or not.

```
num = int(input("Enter a number: "))

if num % 5 == 0:
    print("Number is a multiple of 5")
else:
    print("Number is not a multiple of 5")
```

```
Enter a number: 25
Number is a multiple of 5
```

Q3.Find the greatest among the two numbers. If numbers are equal than print “numbers are equal”

```
a = int(input("Enter first number: "))
b = int(input("Enter second number: "))

if a > b:
    print("Greatest number is:", a)
elif b > a:
    print("Greatest number is:", b)
else:
    print("numbers are equal")
```

```
Enter first number: 15
Enter second number: 20
Greatest number is: 20
```

Q4. Find the greatest among three numbers assuming no two values are same

```
a = int(input("Enter first number: "))
b = int(input("Enter second number: "))
c = int(input("Enter third number: "))

if a > b and a > c:
    print("Greatest number is:", a)
elif b > a and b > c:
    print("Greatest number is:", b)
else:
    print("Greatest number is:", c)
```

```
Enter first number: 10
Enter second number: 15
Enter third number: 20
Greatest number is: 20
```

Q5. Check whether the quadratic equation has real roots or imaginary roots. Display the roots.

```
import math
```

```
a = float(input("Enter value of a: "))
b = float(input("Enter value of b: "))
c = float(input("Enter value of c: "))


D = b*b - 4*a*c

if D > 0:
    print("Roots are real and distinct")
    r1 = (-b + math.sqrt(D)) / (2*a)
    r2 = (-b - math.sqrt(D)) / (2*a)
    print("Root 1 =", r1)
    print("Root 2 =", r2)

elif D == 0:
    print("Roots are real and equal")
    r = -b / (2*a)
    print("Root =", r)

else:
    print("Roots are imaginary")
    real = -b / (2*a)
    imag = math.sqrt(-D) / (2*a)
    print("Root 1 =", real, "+", imag, "i")
    print("Root 2 =", real, "-", imag, "i")
```

```
Enter value of a: 60
Enter value of b: 50
Enter value of c: 70
Roots are imaginary
Root 1 = -0.4166666666666667 + 0.9965217285917832 i
Root 2 = -0.4166666666666667 - 0.9965217285917832 i
```

Q6. Find whether a given year is a leap year or not.

```
year = int(input("Enter a year: "))

if (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0):
    print("Leap year")
else:
    print("Not a leap year")
```

```
Enter a year: 2024
Leap year
```

Q7.Write a program which takes any date as input and display next date of the calendar e.g. I/P: day=20 month=9 year=2005
O/P: day=21 month=9 year 2005

```
day = int(input("Enter day: "))
month = int(input("Enter month: "))
year = int(input("Enter year: "))

days_in_month = [31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31]


if (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0):
    days_in_month[1] = 29

day += 1

if day > days_in_month[month - 1]:
    day = 1
    month += 1

if month > 12:
    month = 1
    year += 1

print("Next date is:")
print("day =", day, "month =", month, "year =", year)
```

```
Enter day: 20
Enter month: 9
Enter year: 2007
Next date is:
```

```
day = 21 month = 9 year = 2007
```

Q8. Print the grade sheet of a student for the given range of cgpa. Scan marks of five subjects and calculate the percentage. CGPA=percentage/10 CGPA range: 0 to 3.4 -> F 3.5 to 5.0->C+ 5.1 to 6->B 6.1 to 7-> B+ 7.1 to 8-> A 8.1 to 9->A+ 9.1 to 10-> O (Outstanding) Sample Gradesheet Name: Rohit Sharma Roll Number: R17234512
Sem: 1
Subject name: Marks PDS:
70 Python: 80 Chemistry:
English: 60 Physics: 50 90 Percentage: 70% CGPA:7.0 Grade:

```
name = input("Enter student name: ")
roll = input("Enter roll number: ")
sem = input("Enter semester: ")


pds = float(input("Enter PDS marks: "))
python = float(input("Enter Python marks: "))
chem = float(input("Enter Chemistry marks: "))
eng = float(input("Enter English marks: "))
phy = float(input("Enter Physics marks: "))


total = pds + python + chem + eng + phy
percentage = total / 5
cgpa = percentage / 10


if cgpa <= 3.4:
    grade = "F"
elif cgpa <= 5.0:
    grade = "C+"
elif cgpa <= 6.0:
    grade = "B"
elif cgpa <= 7.0:
    grade = "B+"
elif cgpa <= 8.0:
    grade = "A"
elif cgpa <= 9.0:
    grade = "A+"
else:
    grade = "O (Outstanding)"


print("\n------ Grade Sheet ------")
print("Name:", name)
print("Roll Number:", roll)
print("Sem:", sem)

print("PDS:", pds)
print("Python:", python)
print("Chemistry:", chem)
print("English:", eng)
print("Physics:", phy)

print("Percentage:", percentage, "%")
print("CGPA:", cgpa)
print("Grade:", grade)
```

```
Enter student name: Rohit Sharma
Enter roll number: R17234512
Enter semester: 1
Enter PDS marks: 70
Enter Python marks: 80
Enter Chemistry marks: 90
Enter English marks: 60
Enter Physics marks: 50

------ Grade Sheet ------
Name: Rohit Sharma
Roll Number: R17234512
Sem: 1
PDS: 70.0
Python: 80.0
Chemistry: 90.0
English: 60.0
Physics: 50.0
Percentage: 70.0 %
CGPA: 7.0
Grade: B+
```