```
# SE 113 LAB 3 SAMPLE SOLUTION
# filename: lab3.py

# Q1a Starts Here
name = input('What is your name? ')
id = input('What is your Student ID? ')

score1 = 0
score2 = 0

score1 = input('Enter 1st exam score: ')
score2 = input('Enter 2nd  exam score: ')

avg = (float(score1) + float(score2)) / 2

print(f'{name}, {id}, your average score is {avg}.\n')

# Q1a Ends Here
# ---------------------------------------------

# Q1b Starts Here
name = input('What is your name? ')

print('Hello', name + ', enter your scores for SE 113 items.')

lab = input('Lab score: ')
homework = input('Homework score: ')
midterm = input('Midterm score: ')
finalExam = input('Final score: ')

finalGrade = (float(lab)*20)/100 + (float(homework)*20)/100 + (float(midterm)*20)/100 +(float(finalExam)*40)/100

print('Your grade of SE113 course is ' + str(finalGrade) + '\n')
###OR, alternatively, the following print statement is also OK
#print('Your grade of SE113 course is', finalGrade, '\n')

# Q1b Ends Here
# ---------------------------------------------

# Q2a Starts Here
number1 = float(input('Enter 1st number: '))
number2 = float(input('Enter 2nd number: '))

addition = float(number1) + float(number2)
subtraction = float(number1) - float(number2)
multiplication = float(number1) * float(number2)
division = float(number1) / float(number2)
exponentiation = int(number1) ** int(number2)
remainder = int(number1) % int(number2)
quotient = int(number1) // int(number2)

print('Addition is %.1f' %addition)
print('Subtraction is %.1f' %subtraction)
print('Multiplication is %.1f' %multiplication)
print('Division is %.1f' %division)
print('Exponentiation is %.1f' %exponentiation)
print('Remainder is %.1f' %remainder)
print('Quotient is %.1f \n' %quotient)

# Q2a Ends Here
# ---------------------------------------------

# Q2b Starts Here
print(2+5)
print(2-5)
print(2/5)
print(2//5)
print(2*5)
print(2**5)
print(2%5)
print(5%2)
print(10/5*2)
print(10/(5*2))
print(2*10/5)
print(4-2+5*2/6-1)

print()

# Q2b Ends Here
# ---------------------------------------------

# Q3 Starts Here
x = 4.2
z = (x**7) + 2*(x**3) - (5*x) + 1

print('z = %.1f\n' %z)

# Q3 Ends Here
# ---------------------------------------------

# Q4 Starts Here
r = float(input("Enter the radius value of the circle:\n"))
print("The perimeter of the circle with radius " + str(r) + " is: " + str(2 * 3.14 * r) + "\n")
###OR, alternatively, the following print statement is also OK
#print('The perimeter of the circle with radius', r, 'is:', 2 * 3.14 * r, '\n')

# Q4 Ends Here
# ---------------------------------------------

# Q5 Starts Here
# ---------------------------------------------
r = float(input("Enter the radius value of the cylinder : \n"))
h = float(input("Enter the height value of the cylinder : \n"))

print("The lateral surface area of the cylinder with radius " + str(r) +" and height " +str(h)+ " is: " + str(2 * (22/7) * r * h) + "\n")
###OR, alternatively, the following print statement is also OK
#print('The lateral surface area of the cylinder with radius', r, 'and height', h, 'is:', 2 * (22/7) * r * h, '\n')

# Q5 Ends Here
# ---------------------------------------------

# Q6 Starts Here
# ---------------------------------------------
x = 7*6*5*4*3*2*1

y = (7*6*5*4*3*2*1)/(3*2*1)

z = (7*6*5*4*3*2*1)/((3*2*1)*(2*1))

print('7! = ' + str(x) + '\n')
print('7!/3! = ' + str(y) + '\n')
print('7!/(3!*2!) = ' + str(z) + '\n')

# Q6 Ends Here
# ---------------------------------------------

# Q7 (TO-DO @ Home) Starts Here
num = int(input("Enter a number to calculate factorial: "))

# check whether the number is negative or not
if num < 0:
    print("Factorial does not exist for negative numbers\n")
else:
    factorial = 1
    i = 1
    while i <= num:
        factorial = factorial * i
        i = i + 1
    print(str(num) +'! is '+ str(factorial))
    ###OR, alternatively, the following print is also OK
#    print(str(num) + '! is', factorial)

# Q7 (TO-DO @ Home) Ends Here
# ---------------------------------------------
```