(1) What does the following program do?

```
if 2 + 2 == 5:
    print("Sorry!")
else:
    print("Bonjour!")
```

(2) What does the following program do?

```
state = 1
for i in range(100):
    if (state==1):
        print 'A',
    else:
        print 'B',
    state = 1 - state
```

(3) What does the following program do?

```
n = 50
guess = input('Your guess?')

while guess != n:
    if guess > n:
        print('Too large!')
    if guess < n:
        print('Too Small!')
    guess = input('New guess?')

print("Correct!")
```

(4) What does the following program do?

```
def prod(x):
    p = 1
    for e in x:
        p = p * e
    return p

prod([4, 5, 6])
```

(5) Write a program that prints the squares of the first 100 integers

(6) Given a variable n, compute the sum of the first n integers

(7) Write a program that computes the sum of all the multiples of 7 below 1000

(8) Write a function that returns the product of all integers between 1 and n (is is called a factorial).

(9) Write a program that returns the 'nth' Fibonacci number F(0) = 0; F(1)=1; F(n) = F(n-1) + F(n-2)

(10) Compute the estimate of pi using the first 1000 terms of Wallis formula.

(11) Estimate pi using Monte Carlo simulations (taking random points in the (0,1)x(0,1) square and checking if they are in the unit circle (use the function `random.uniform`)

(12) Given a list, return the list that has the same elements in reversed order

(13) Given a list, return its unique elements (remove repeations)

(14) Compute the frequency of occurences of words in a text file.

(15) Display all anagrams (permutations of letters) of a given word.

(16) Simulate sampling from a urn containing a given proportion of white balls. Display the histogram of the proportions in samples.

(17) Read a file containing two columns, the first containing labels and the second numbers. Compute the means associated to each label.

(18) Draw a cloud of dots at random locations on the screen (suppose you have a function dot((x,y), color)) to display a dot of color color at location (x,y) on the screen; no initialisation code)

(19) Draw a disk that moves and bounces on the screen's border.