Allowing full access to your computer for a take-home test means that certain types of questions can no longer be asked, as you could just type them into your computer and see what the output was. So instead, questions aimed at your ability to understand fundamentals of code will come at things from some different perspectives. I include a few here so you can have an idea of how they might appear.

Practice Questions

1. Write an appropriate doc-string for the below function. It should include both a high-level description of what the program does (which is not just a line by line description) as well as what types of inputs are allowed and what types of outputs are returned.

```
def problem1(a, b=2):
    c = ""
    for n in a:
        if int(n) % b != 0:
            c += n
    return c
```

2. An alternative way to test your understanding of a function is to ask you to work backwards. Take, for example, the function:

```
1  def problem2(n):
2      r = 0
3      t = 1
4      while n > 0:
5          r += t * (n % 2)
6          t *= 10
7          n //= 2
8      return r
```

   Given this function, which you could of course type into your computer, determine what input value to the argument `n` would end up returning the integer 11011000001. Guessing and checking is a poor method to solving these! Rather, you should look at the code to develop an understanding for what is occurring and let that guide you. It should be very easy to check yourself though!

3. Given the function

```
def problem3(s):
    r = ""
    for i in range(len(s)):
        if i % 2 == 1:
            r += s[i]
        else:
            r = s[i] + r
    return r
```

determine what value of the argument `s` returns the string `"street"`.

4. Given the pair of functions

```
def prob4a(s):
    r = 0
    new = ""
    for i in range(len(s)):
        if s[i].isspace() and is_english_word(s[r:i]):
            new += prob4b(s[r:i])
            r = i + 1
    new += prob4b(s[r:])
    return new


def prob4b(y):
    done = False
    for r in y[::-1]:
        if done:
            return r
        if r.lower() in "aeiou":
            done = True
    return " "
```

what input value for `s` would return from function `prob4a` the string `"Hi world"`? You can assume the function `is_english_word` has been correctly imported from the `english` library.