1. This code is intended to find all courses where the student got an 'A'. Does this code work? Explain why or why not. If applicable, circle any issues in the code.

```
student = {
    'name': 'Good Student',
    'grades': [{ 'CSCI128': 'A' }, { 'HASS100': 'B' }, { 'PHGN100': 'B' }]
}

grades = student['grades']
print(f'Courses where {student.name} got an A:')
for grade in grades:
    if grade == 'A':
        print(course)
```

No

Code won't work

There's syntax and iteration errors

2. What is an instance where a dictionary would be more useful than an object from a class you wrote? What is an instance where an object from a class you wrote would be more useful than a dictionary?

Adictanory is better for unstructured data

Objects are better at Presetined behaviors

3. Consider a list formatted as such:

```
city_list = [
   [<city name>, <city population>],
   [ ... ]
]
```

   (a) Print out each city's name and population for cities whose population is **less than** 100,000.

   (b) Find and print out the population of the city with the name 'Golden'.

   (c) Now consider a dictionary formatted as shown below. Using the new dictionary, print out each city's name and population if the population of the city is **greater than** 100,000.

```
cities = {
   '<city name>': <city population>,
   ...
}
```

   (d) Using the new dictionary, find and print out the population of the city with the name 'Golden'.

   (e) Was using a list or dictionary easier for these problems? Why?

(Start of review questions)

4. List the requirements for a recursive function, and give an example of a problem which could be solved recursively.

Base Case
Progress → Base case
Function is calling itself

Example: Factorials

5. What does 'self' represent in a class?

It refers to the Class itself

6. What does the following code print out?

```
for i in range(0, 3):
    for j in range(0, 3):
        print(i * j, end=' ')
    print()
```

0 0 0
0 1 2
0 2 4

7. Write code that opens 'sample.txt' in read mode and prints out every other line of text.

8. Write code that plots the following lists as a bar chart using matplotlib.

```
import matplotlib.pyplot as plt

x = ['a', 'b', 'c', 'd', 'e']
y = [10, 30, 50, 70, 90]
```