1. Section Date and Time: Full Name | SFSU ID

* CSC 210.03 Wednesday, December 16, 12:35 – 2:35 PM

1. Final Exam (1 exam): 150 points \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_|\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Please review all related material Lecture notes, slides, midterm practices and exam, in-class practice, sample programs.
3. Show your work typed. Your writing must be clear and readable to the grader(s).

Honor Code:- Please follow CS Department’s policies: <https://cs.sfsu.edu/cheating-and-plagiarism-policy>

Part A – 35 Points

A.1 - 7 Points

Please write a complete method declaration and name each component.

A.2 - 7 Points

Please write code to declare and initialize a 1D array then write a do-while loop to display the content of the array.

A.3 - 7 Points

Please write code to declare and initialize a 2D array then write a **for** loop to display the content of the array.

A.4 - 7 Points

Please **list** and **explain** the general components of a Java class.

A.5 - 7 Points

Please explain in detail the differences between a **static** and an **instance** variable.

Part B – 100 Points

B.1 - 15 Points

Please code a complete **if-else statement** then convert it into a **switch statement**. Please have at least 4 cases (including the default case).

**if-else statement:**

**switch statement:**

B.2 - 15 Points

Please code a complete Java program: HolidayStudio

- Your program prompts users to enter their favorite language.

- Then the program prints “Merry Xmas and Happy New Year!” in that language.

- It is OK to assume that users will always choose your favorite language.

- This program must have at least 2 methods. (1 of them is the **main** method.)

- A sample run of the program (think Google Translate):

**Enter favorite language:** Vietnamese

**Chúc Giáng Sinh an lành và Năm Mới hạnh phúc!**

**Enter favorite language:** Indonesian

**Selamat natal dan tahun baru!**

**Enter favorite language:** English

**Merry Xmas and Happy New Year!**

**Enter favorite language:** exit

**Goodbye!**

B.3-to-B.6 – B.3 10 points

Please think of a real-life entity which you can write a Java class to represent.

What is that entity?

Why do you think it is suitable to be a Java class?

Please code the class.

B.4 - 10 Points

Please code a data field for your class to keep track of the number of objects created.

Then explain in detail why your code should work properly, including how the data field should be used, and whether it should be **static, public** or **private**.

B.5 - 10 Points

Write a no-argument constructor and a three-argument constructor for your class.

Code instructions to create 2 objects using both constructors above.

B.6 - 10 Points

Please code a **static** and a **private** variables for your class.

Choose 1 variable and write 2 statements to show 2 ways to access the variable from **main** method. Mark the preferred way.

B.7 - 10 Points

What are the 3 pillars of Object-Oriented Programming? Please explain each of them in your own word.

B.8 - 10 Points

Please code a new and encapsulated data field to add to your class.

Please code what you need in order to be able to update the data fieldusing an object created in **main**.

B.8 - 10 Points

State whether following statements of naming conventions are true or false.

1. All variable names should start with an uppercase letter. (T/F)?

2. Method names should be lower-cased.(T/F)?

3. If a variable name contains more than one word, capitalize the first letter of each word except first.(T/F)?

4. Capitalize the first letter in each word of class name.(T/F)?

Part c – 15 Points

C.1 - 5 Points

Give a your own example of method overloading and method overriding

C.2 - 5 Points

Give a real-life example of an **Inheritance** relationship

What is the keyword used in the Child Class header?

**C.3** - 5 Points Why you would you use a try-catch statement ?