THE UNIVERSITY OF BRITISH COLUMBIA
CPSC 310: SAMPLE MIDTERM EXAM

Name: _____

Student #: _____

Signature: _____

Notes about this examination

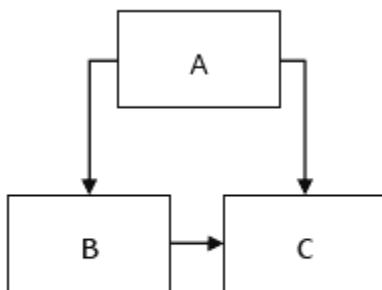|	Marks	Max
Multiple Choice		6
True/False		10
11		8
Total		24

1. **24** marks are available; you may wish to start with the questions you consider to be the easiest.

2. No notes, books, or any type of electronic equipment is allowed including cell phones and calculators.
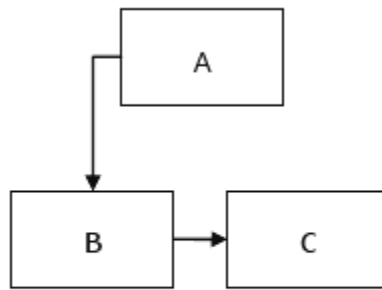
3. Good luck!

Multiple Choice

Choose the best answer(s) for each question and provide a *brief* justification for your answer(s).

1. Assume that the designs (a) and (b) below are two valid solutions to a particular problem. Which design is better? **[2 marks]**
   a. design (a) is better
   b. design (b) is better
   c. designs (a) and (b) are equally good designs

(a)   (b)

2. Circle all of the non-functional requirements below **[2 marks]**
   a. The server must have 99.9% uptime.
   b. The system must encrypt the password before authenticating over the network.
   c. The system must be usable on a mobile device.
   d. The server must be usable when being accessed by 100 users simultaneously.
   e. The user must be able to edit his/her profile.

3. A use case diagram **[2 marks]**
   a. gives a high level overview of the system
   b. shows how each type of user will interact with the system
   c. describes each use case in detail
   d. must be completed for every project
   e. a and b
   f. b and d
   g. a, b, c, and d

True/False

For each true/false question below provide a *brief* justification of your answer.

4. A sequence diagram models the static relationships between objects. **[2 marks]**

5. The type UndergradStudent is substitutable (under Liskov's Substitution Principle) for its supertype Student. **[2 marks]**

```
class Student{
    ...
    // @pre The student is eligible to register for Course c
    //
    public void addCourse(Course c) {...}
    …
}
```

```
class UndergradStudent extends Student{
    ...
    // @pre none
    //
    public void addCourse(Course c) {...} …
}
```

6. The Daily Scrum meeting allows developers to show a demo of their work, so the product owner can determine if progress is on track. **[2 marks]**

7. It is important for software development teams to estimate task durations so that they can work on the shortest duration tasks first. **[2 marks]**

8. It's more important to follow the open/closed principle once you've released an API for your software than before you've released an API. **[2 marks]**

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Short Answer

9. Imagine that you are a technical team lead for a software development team. Your team is going to start a new project and you need to choose which lifecycle (Waterfall, Scrum or XP) your team will use. Which factors will you consider when making your choice? For each factor, explain why it's an important factor to consider. **[8 marks]**