**Assignment 1 (Due Date: September 17, 2021)**

Complete the following questions and submit the answers (in WORD file) to the course Gmail account before due date. Read through the ‘Class Schedule and Code of Conduct’ for the key information about this course.

**Question 1**

You are given a set of 9 balls. All of them look the same. Eight of them weight 2000 grams and one of them weights 1999 grams. Human is unable to sense this little difference. Now, the only tool you have is a pan balance. Your job is to find out which of them is lighter. Describe in detail, step by step, how do you use the pan balance to find the lighter ball. [25 marks]

**Question 2**

Similar to Question 1, you are given a set of 9 balls. In this time around, eight of them weight 2000 grams and one of them weights 2001 grams. Pan balance is the only tool to be used. Describe in detail, step by step, how do you use the pan balance to find the heavier ball. [25 marks]

**Question 3**

Again, you are given a set of 9 balls which are looked and sensed the same. Similar to the setting in Question 1 and Question 2, eight of them are 2000 grams. For the abnormal ball, we do not know if it is lighter or heavier. Describe in detail, step by step, how do you use the pan balance to find the heavier ball. [50 marks]