**Name : Hà Quang Minh**

**ID : 1931220012**

**Exercise 1 :**

**Exercise 2 :**

**Exercise 3 :**

**A )**

* Question 1 : Yes, in practice , queuing delay can vary significantly. We use the above formulas as a way to give a rough estimate, but in a real-life scenario it is much more complicated.
* Question 2 : Queuing delay = l ( L / R )(1 - l ) \* 1000 = 0.4533 \* (1000 / 100000) \* ( 1 - 0.4533 ) \* 1000 = 2.4782 ms.
* Question 3 : Queuing delay = l ( l / R ) ( 1 - l ) \* 1000 = 0.8 \* ( 1000 / 100000 ) \* ( 1 - 0.8 ) \* 1000 = 1.6 ms.

B

* Question 4 : Packets left in buffer = a - floor ( 1000 / delay ) = 1260 - floor ( 1000 / 1.1003 ) = 352 packets.
* Question 5 : Packets dropped = packets - buffer size = 632 - 546 = 86 dropped packets.

**Exercise 4 :**

**Exercise 5 :**

**Exercise 6 :**