**Assignment #1 INDU6331 Advanced Quality Control**

Due date: Friday, May 13, 2022, before 6:00 p.m.

**Assignments must be submitted through Moodle.** No submission through email is accepted.

Assignment must be solved by hand (No use of Minitab/Excel).

1. A discrete random variable *X* has the following probability mass function:

1. Show that *k* =
2. Find *E(X)*
3. Show that
4. Find

2. A lot of size N= 30 contains three nonconforming units. What is the probability that a sample of five units selected at random contains exactly one nonconforming unit?

3. Patients randomly arrive at a clinic following Poisson distribution at a rate of 4 per hour. A patient arrives at 10:00 am. Find the probability that the next patient arrives before 10:15 am.

4. A factory produces components of which are 1% defective. The components are packed in boxes of 10. One box is selected at random. Find the probability that there are at least two defective components in the box.