MATH-2205-A-ICA-2

Solve all the following problems.

1. Consider the ***mgf*** $\boldsymbol{M(t) = \frac{0.25e^t}{1-0.475}}$ of random variable $\boldsymbol{X}$. Find the ***pmf***, **mean** and **standard deviation** of $\boldsymbol{X}$.

2. Let a random experiment be the casting of a pair of fair six-sided dice and let $\boldsymbol{X}$ equal the **minimum of two outcomes**. With reasonable assumptions, find ***pmf*** of $\boldsymbol{X}$. Also, find the ***mgf*** and **variance** of $\boldsymbol{X}$.

3. In a super-shop, there are **10** sales-persons with **4** of them **trained**. Company is going to give them annual increment in an **independent** process, find the probability that **at most 2 trained** sales-persons get the increment. What is the **variance** of the distribution?

4. Candidates come to a certification authority at a mean rate **48** per day under a **Poisson process**. Find the probability of **at least 3** candidates arrive in a given hour. What is the **standard deviation** of the distribution?