PRACTICE SHEET 1

1. Two bad eggs are accidently mixed with ten good ones. Three eggs are drawn at random with replacement from this lot. Compute μ and σ^2 for the number of bad eggs drawn.

2. In a bombing action there is 50% chance that any bomb will strike target. Two direct hits are needed to destroy the target completely. How many bombs are required to be dropped to give 99% chance of completely destroying the target.

3. The probability that a person suffers a bad reaction from a certain injection is 0.001. Find the probability that out of 2000 individual:

(i) exactly3,

(ii) more than 2 individuals will suffer a bad reaction.

4. Show that mean, median and mode coincide for the normal distribution.

5. An urn contains four balls. Two of the balls are numbered with 1 and the other two numbered with 2. Two balls are drawn from the urn without replacement. Let **X** denotes the smaller of the numbers on the drawn balls and **Y** denotes the larger

(a) Find joint density of **X** and **Y**.

(b) Find marginal density distribution of **Y**.

(c) Find $\text{cov}(X,Y)$.