1. A company owns 400 laptops. Each laptop has an 8% probability of not working. You randomly select 20 laptops for your salespeople.

(a) What is the likelihood that 5 will be broken?

(b) What is the likelihood that they will all work?

(c) What is the likelihood that they will all be broken?

2. There are 10 members on a committee. The probability of any member attending a randomly chosen meeting is 0.9. The committee cannot do business if more than 3 members are absent. What is the probability that 7 or more members will be present on a given date?

3. Suppose that Bayanisthol, a new drug, is effective for 65% of the participants in clinical trials. If a group of fifteen patients take this new drug,

a) What is the expected number of patients for whom the drug will be effective?

b) What is the probability that the drug will be effective for less than half of them?

4. In an emergency room the rate of arrival of consumers is 2 persons per minute.

a) What is the probability that 26 persons arrives between 9:30am to 9:45am?

b) What is the likelihood that the total number of patient arrivals between 10am to 11am and 2pm to 3pm is less than 50?

5. A group of students at a school takes a history test. The distribution is normal with a mean of 25, and a standard deviation of 4. (a) Everyone who scores in the top 30% of the distribution gets a certificate. What is the lowest score someone can get and still earn a certificate? (b) The top 5% of the scores get to compete in a statewide history contest. What is the lowest score someone can get and still go onto compete with the rest of the state?