# NAME (ALL CAPS):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**EXAM 3 SCORE: /25**

**STAT 115A**

**Show all work for full credit. Each question is worth 5 points**

**Q1)** Suppose that blood chloride concentration (mmol/L) has a Normal distribution with mean 104 and standard deviation

5. What is the probability that chloride concentration

1. equals 105 that is, P(X = 105)?
2. less than 105?
3. is at most 105?

**Q2)** The article “Reliability of Domestic-Waste Biofilm Reactors” suggests that substrate concentration of influent to a reactor is normally distributedwith and .

a) What is the probability that the concentration exceeds .25?

b) How would you characterize the largest 5% of all concentration values?

**Q3)** Suppose the force acting on a column that helps to support a building is a normally distributed random variable X

with mean value 15.0 kips and standard deviation 1.25 kips. Compute the P**(|**.

**Q4)** Suppose the diameter at breast height (in.) of trees of a certain type is normally distributed with and , as

suggested in the article “Simulating a Harvester-Forwarder Softwood Thinning”. What value c is such that the interval

includes 98% of all diameter values?

**Q5)** **Note: For this problem you just need to provide the appropriate R functions without computing anything.**

What R function will you use to find the following:

a) Area under the standard normal curve to the left of -1.5 that is P(Z < -1.5).

b) Area under the standard normal curve to the right of -1.5 that is P(Z > -1.5).

c) Area under the normal curve between 3.1 and 3.5 that is P(3.1 < X < 3.5) where X has Normal distribution with mean of 3

and standard deviation of 2.