Question # 1 (15 marks)

In Scott library whenever there is a reading week thirty percent of all patrons who enter the library will borrow a laptop.

Part 1

Supposed that on Tuesday, sixteen patrons enter Scott library and these patrons make independent borrowing decisions.

A) What is the probability that three patrons will borrow a laptop on Tuesday?

B) How many of the patrons could we expect will borrow a laptop on Tuesday?

C) What is the standard deviation of the patrons who would borrow a laptop on Tuesday?

Part 2

On Sunday, twenty patrons enter Scott library and these patrons make independent borrowing decisions.

D) What is the probability that no more than ten patrons will borrow a laptop on Sunday?

E) What is the probability that at least seven patrons will borrow a laptop on Sunday?

F) What is the probability that there are at least three but no more than five patrons who will borrow a laptop on Sunday?

Question # 2 (15 marks)

Part 1

There's been a longstanding debate within the HR community as to whether, or not, there's a difference in the effort put forth by employees with bachelor degrees as compared with those employees holding masters. As a newly designated CHRP, your manager has asked you to answer a couple of questions for her meeting later today.

In reviewing your company's records over the past 5 years, you determine that those with a master's degree work an average of 75 hours per week, while those with bachelor degrees work a weekly average of 65. You calculate the standard deviation for master's degree holders as 21 hrs/week, but for those with bachelor's degrees it's 20hrs/week. You now select 5 bachelor's degree holders and 5 with master's degrees.

What is the probability that the mean weekly working hours of the 5 employees with master's degrees will exceed that of the 5 employees with bachelor's degrees?

Part 2

A) The company's training program is tough, as positions are highly sought after. It's known as the '10 hrs/day, 7 days/week' program throughout the industry. To test this, you look at the number of hours sleep trainees get and compare it with the normal 8 hrs/night. Looking back since the training program was initiated in 2012, you find that trainees got an average of 7.2 hours of sleep/night, with a standard deviation of 40 minutes. What is the probability that a random selected trainee got 8 hours/night or less?

B) You're also interested in knowing the maximum amount of sleep for those trainees falling in the lowest 5% of sleeping times.

Question # 1 (Answer Key)

Part 1 A	0.1465
Part 1 B	4.8
Part 1 C	1.833
Part 2 D	0.9829
Part 2 E	0.3920
Part 2 F	0.3809

Question # 2 (Answer Key)

Part 1	0.7794
Part 2 A	0.8849
Part 2 B	6.1033