

## Ceng272 - Quiz 4

May 02, 2011

1. (Monday Section) (15 pts) The time-length to charge of an electric shaver has a normal distribution with a mean of 60 minutes and standard deviation of 15 minutes. When the battery is charged completely, the indicator lights up. Find the probability that the electric shaver's indicator lights up within 40 minutes.
2. (Wednesday Section) (10 pts) In a nationwide test (High school), the scores,  $X$  are normally distributed with  $\mu = 520$  and  $\sigma = 82$ . Suppose a student's score is 680 in the test.
  - (a) What percentage of the students of this test score between 480 and 620?
  - (b) What fraction of students have a higher scores this student?
  - (c) Suppose an university gives an admission to the students who gets top 15%. What is the minimum score to get an admission?
3. (Wednesday Section) (5 pts) The average life of a certain type of small motor is 10 years with a standard deviation of 2 years. The manufacturer replaces free all motors that fail while under guarantee. If he is willing to replace only 3% of the motors that fail, how long a guarantee should he offer? Assume that the lifetime of a motor follows a normal distribution.