



Solve the following problems using Excel,

**Problem 1 (35 points):**

Lack of sleep is a serious medical problem. It has been linked to heart attacks and automobile collisions. A Statistics Canada study asked a random sample of Canadian adults to report the amount of sleep they normally get. Can we conclude from the data that men and women differ in the amount of sleep? Use a 5% significance level. *Hint: use equal variances test statistic for difference in means.*

**Problem 2 (35 points):**

In deciding where to invest her retirement fund, an investor recorded the weekly returns of two portfolios for 1 year. Can we conclude that portfolio 2 is riskier than portfolio 1? Use a 5% significance level. *Hint: test whether variance from portfolio 2 is greater than the variance from portfolio 1 under the alternative.*

**Problem 3 (30 points):**

In early 2001, the economy was slowing down and companies were laying off workers. A Gallup poll asked a random sample of workers how long it would be before they had significant financial hardships if they lost their jobs and couldn't find new ones. They also classified their income. The classifications are

More than \$50,000

\$30,000 to \$50,000

\$20,000 to \$30,000

Less than \$20,000

Can we infer that differences exist between the four groups?

Use a 5% significance level. *Hint: Make use of ANOVA.*

**NOTE:** You can submit your answers in an excel file (with a sheet for each problem) or by taking screenshots in a pdf file (copy-pasting in a word file and then turning it into a pdf file).