



2. A statistics department at a state university maintains a tutoring service for students in its introductory service courses. The service has been staffed with the expectation that 40% of its students would be from the business statistics course, 30% from engineering statistics, 20% from the statistics course for social science students, and the other 10% from the course for agriculture students. A random sample of  $n=120$  students revealed 50, 40, 18, and 12 from the four courses. Does this data suggest that the percentages on which staffing was based are not correct? State and test the relevant hypotheses using  $\alpha = .05$ . [Conduct a goodness-of-fit test.] (20 points)
3. Folic acid is the only B vitamin present in any significant amount in tea, and recent advances in assay methods have made accurate determination of folic acid content feasible. Consider the accompanying data on folic acid content for randomly selected specimens of the four leading brands of green tea.

Brand	Observations						
1	8.0	6.3	6.7	8.7	9.0	10.2	9.7
2	5.8	7.6	9.9	6.2	8.5		
3	6.9	7.6	5.1	7.5	5.4	6.2	
4	6.5	7.2	8.0	4.6	5.1	4.1	

Does this data suggest that true average folic acid content is the same for all brands? Carry out a single-factor ANOVA test using  $\alpha = .05$  via the  $P$ -value method. (20 points)

4. A data file is provided, **143exam2data.xlsx**, with data on gender and salary taken from a retail company's files. Conduct a two-sample hypothesis test to determine if the mean salary of one gender are different than the mean salary of the other. In this data set, 1=male. Clearly state your null and alternative hypotheses and interpret the results. Is there sufficient evidence to think the mean salaries are different? (20 points)