

**Practice problems for Exam II : STA 3024 (Sec 0751)**

1) HW problem from Ch 13: 13.6

2) HW problem from Ch 13: 13.23 (a,b,c,d)

3) A study of cardiovascular risk factors compared heavy smokers, light smokers, and non-smokers. Both men and women were included in the study so that the two factors are smoking level and gender. There were 25 subjects included in **each** of the combinations of gender and smoking status. One of the variables measured was the heart rate after six minutes of exercise. A two-way ANOVA is performed with the partial ANOVA table given below.

Source	DF	SS	MS	F
Smoking Level			15425.2	
Gender		331.5		
Interaction				
Error			453.455	
Total		85484.0		

Please fill in the missing information in the two-way ANOVA table and then conduct a significance test for a smoking level effect. Clearly state your null and alternative hypotheses, your test statistic, p-value and conclusion.

4) Consider the following one-way ANOVA model  $x_{ij} = \mu_{ij} + \varepsilon_{ij}$  for a study wishing to compare the average number of personal injuries of football players on Florida's top three college teams: University of Florida ( $\mu_1$ ), and University of Miami ( $\mu_2$ ), Florida State University ( $\mu_3$ ) The study sampled 15 players from each team.

**Please match up the correct pairs.**

- |  |       |  |
|--|-------|--|
| i) The variation caused by the difference between the three averages   | _____ | a) $s_1, s_2, s_3$                       |
| ii) The number of personal injuries for Chris Leak, the 3 <sup>rd</sup> person in the UF sample.                     | _____ | b) 41                                    |
| iii) The degrees of freedom for our error.   | _____ | c) SSG                                   |
| iv) We must assume that these are all equal.   | _____ | d) $x_{1,3} = \mu_1 + \varepsilon_{1,3}$ |
| v) Residual, or chance variation, due to Brock Berlin's (1 <sup>st</sup> person in Miami sample) specific condition. | _____ | e) $\sigma_1, \sigma_2, \sigma_3$        |
|  |       | f) $x_{3,1} = \mu_1 + \varepsilon_{3,1}$ |
|  |       | g) 42                                    |
|  |       | h) $y_{21} - \hat{y}_{21}$               |
|  |       | i) SSE                                   |
|  |       | j) $x_{21} - \bar{x}_{21}$               |