**2k Full and Fractional Factorial Designs**

Q.1. A 23 factorial experiment is conducted to determine the main effects and interactions among 3 factors (presence/absence) on taste quality for frozen dinners. The following table gives the design, mean, and standard deviation (SD) for the 8 combinations of factor levels. There were 4 replicates per treatment.



p.1.a. Give the +1/-1 levels for the ABC Interaction.

p.1.b. Compute  Test H0: No Factor A effect

lA = \_\_\_\_\_\_\_\_\_\_\_\_\_ SSA = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Test Statistic = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Rejection Region: \_\_\_\_\_\_\_\_\_\_

Q.2. A 23 factorial experiment is conducted to determine the main effects and interactions among 3 factors (presence/absence) on taste quality for frozen dinners. The following table gives the design, mean, and standard deviation (SD) for the 8 combinations of factor levels. There were 3 replicates per treatment.



p.2.a. Give the +1/-1 levels for the ABC Interaction in the table above.

p.2.b. Compute MSE

p.2.c. Compute  Test H0: No Factor A effect

lA = \_\_\_\_\_\_\_\_\_\_\_\_\_ SSA = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Test Statistic = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Rejection Region: \_\_\_\_\_\_\_\_\_\_

Q.3. A 23 factorial experiment is conducted to determine the main effects and interactions among 3 factors (presence/absence) on taste quality for frozen dinners. The following table gives the design, mean, and standard deviation (SD) for the 8 combinations of factor levels. There were 3 replicates per treatment.



p.3.a. Give the +1/-1 levels for the ABC Interaction in the table above.

p.3.b. Compute MSE

p.3.c. Compute  Test H0: No Factor A effect