Exercise 10-ANOVA Test

1. The following data represent the nationwide highest yied of different type of accounts.

Six-month CD	One-Year CD	Two-Year CD
5.2	5.5	5.6
5.1	5.0	4.9
4.6	5.3	5.4
5.0	4.7	5.0

   At 0.05 level of significance, is there evidence of a difference in the mean yields of the different accounts?

2. The sales volumes (in thousand of ringgits) of three different locations in a supermarket chain were as tabulated below.

Front	Middle	Rear
4.00	4.50	3.50
5.00	5.00	3.80
5.40	3.50	5.50
6.20	4.00	4.00

   At 0.05 level of significance, is there evidence of a difference in the mean sales volumes of the different locations?

3. A completely randomized designed was performed to test the strength of four brands of trash bags. The four brands of trash bags are 'Brand A', 'Brand B', 'Brand C' and "Brand D". Data containing a sample 10 trash bags for each brand are taken by measuring the mean weight (in kilogram) to break the trash bags. One-way ANOVA (at 0.05 level of significance) is performed on these data to seek for evidence of a difference in the mean strength of the trash bags. The results are tabulated below:

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	1986.475			48.10838	1.12E-12	2.866265
Within Groups	495.5					
Total	2481.975	39				

(a) State the null and alternative hypotheses for the ANOVA test.

(b) Based on the output of the results, state the value of F_{STAT}. Calculate the value of MSB, MSW and verify the value of F_{STAT} by using the results' outputs.

(c) At the 0.05 level of significance, is there evidence of a difference in the mean strength of the four brands of trash bags? Explain.