第一部份、統計學(50 分)

1. The following data COFFEEDRINK represent the calories and fat (in grams) of 16-ounce iced coffee drinks at Dunkin' Donuts and Starbucks.

Product	Calories	Fat
Dunkin' Donuts Iced Mocha Swirl latte (whole milk)	240	8.0
Starbucks Coffee Frappuccino blended coffee	260	3.5
Dunkin' Donuts Coffee Coolatta (cream)	350	22.0
Starbucks Iced Coffee Mocha Expresso (whole milk and whipped cream)	350	20.0
Starbucks Mocha Frappuccino blended coffee (whipped cream)	420	16.0
Starbucks Chocolate Brownie Frappuccino blended coffee (whipped cream)	510	22.0
Starbucks Chocolate Frappuccino Blended Crème (whipped cream)	530	19.0

Source: Extracted from "Coffee as Candy at Dunkin' Donuts and Starbucks," Copyright © 2004 by Consumers Union of U.S., Inc., Yonkers, NY 10703-1057. Adapted with permission from Consumer Reports, June 2004, 9.

For each variable (calories and fat),
a. Compute the mean, median, first quartile, and third quartile. (此題 5 分)
b. Compute the variance, standard deviation, range, interquartile range, coefficient of variation, and Z scores. Are there any outliers? Explain. (此題 5 分)
c. Are the data skewed? If so, how? (此題 5 分)

2. A sales and marketing management magazine conducted a survey on salespeople cheating on their expense reports and other unethical conduct (D. Haralson and Q. Tian, "Cheating Hearts," *USA Today*, February 15, 2001, 1A). In the survey, managers have caught salespeople cheating on an expense report 58% of the time, working a second job on company time 50% of the time, listing a "strip bar" as a restaurant on an expense report 22% of the time, and giving a kickback to a customer 19% of the time. Suppose the survey was based on a sample of 200 managers. Construct a 95% confidence interval estimate of the population proportion of managers who have caught salespeople
a. cheating on an expense report. (此題 5 分)
b. working a second job on company time. (此題 5 分)
c. listing a "strip bar" as a restaurant on an expense report. (此題 5 分)
d. giving a kickback to a customer. (此題 5 分)

3. Money worries in the United States start at an early age. In a survey, 660 children (330 boys and 330 girls) ages 6 to 14 were asked the question, "Do you worry about having enough money?" Of the boys surveyed, 201 (60.9%) said yes, and 178 (53.9%) of the girls surveyed said yes (Extracted from D. Haralson and K. Simmons, "Snapshots," *USA Today*, May 24, 2004, 1B). At the 0.05 level of significance, is the proportion of boys who worry about having enough money greater than the proportion of girls? Using the 0.05 level of significance, for the one-tail test in the upper tail, the critical value is +1.645. (此題 5 分)

4. You predicted the durability of a brand of running shoe based on the forefoot shock-absorbing capability and the change in impact properties over time. The regression analysis resulted in the following ANOVA summary table:

ANOVA	Degrees of Freedom	SS	MS	F	Significance
Regression	2	12.61020	6.30510	97.69	0.0001
Error	12	10.77453	0.06454		
Total	14	13.38473			

a. Determine whether there is a significant relationship between durability and the two independent variables at the 0.05 level of significance. (此題 5 分)
b. Interpret the meaning of the *p*-value. (此題 5 分)

注意：背面有試題

參考用

所別：<u>人力資源管理研究所碩士班</u>　科目：<u>經濟學與統計學</u>　共<u>二</u>頁　第<u>二</u>頁

＊請在試卷答案卷（卡）內作答

Critical Values of F

For a particular combination of numerator and denominator degrees of freedom, entry represents the critical values of F corresponding to a specified upper-tail area (α).

Denominator df_2	Numerator, df_1													
	1	2	3	4	5	6	7	8	9	10	12	15	20	24
1	161.40	199.50	215.70	224.60	230.20	234.00	236.80	238.90	240.50	241.90	243.90	245.90	248.00	249.10
2	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38	19.40	19.41	19.43	19.45	19.45
3	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81	8.79	8.74	8.70	8.66	8.64
4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00	5.96	5.91	5.86	5.80	5.77
5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77	4.74	4.68	4.62	4.56	4.53
6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10	4.06	4.00	3.94	3.87	3.84
7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68	3.64	3.57	3.51	3.44	3.41
8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39	3.35	3.28	3.22	3.15	3.12
9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18	3.14	3.07	3.01	2.94	2.90
10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02	2.98	2.91	2.85	2.77	2.74
11	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90	2.85	2.79	2.72	2.65	2.61
12	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80	2.75	2.69	2.62	2.54	2.51
13	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71	2.67	2.60	2.53	2.46	2.42
14	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65	2.60	2.53	2.46	2.39	2.35
15	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59	2.54	2.48	2.40	2.33	2.29
16	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54	2.49	2.42	2.35	2.28	2.24
17	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49	2.45	2.38	2.31	2.23	2.19
18	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46	2.41	2.34	2.27	2.19	2.15
19	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42	2.38	2.31	2.23	2.16	2.11

參考用

第二部份：經濟學(50%)

1. 何謂邊際替代率（Marginal Rate of Substitution）？其所代表的經濟意義為何？（5%）

2. 試以經濟學的角度，來分析此次我國政府發放消費券的政策效果。(20%)

3. 為什麼某些商店要提供顧客折價券，而不直接降低商品的售價？根據你的觀察或判斷，哪種類型的商店比較會傾向提供折價券？說明其中的道理。(15%)

4. 近年來我國女性生育率下降，許多人都在擔心少子化所衍生出來的問題，你能夠舉出幾個少子化趨勢下可能出現的正面效益嗎？請說明你的推論。(10%)

注意：背面有試題