Uva Wellassa University

End Semester Examination- February/March, 2011

SCT 441-1 Data Handling and Statistics

Time: Three (03) hours

Answer All Questions.

Total two (2) pages.

1. A research has shown that the color of food can dramatically affect people's judgment of how good that food tastes. Food that has a typical color is usually rated as less tasty than food that has an artificial color. A study was carried out with 15 participants. They are served awarded-winning mashed potatoes that are smooth, white, and lightly seasoned with salt, pepper, garlic, chives, and mild cheese. The same participants are also served mashed potatoes prepared identically except that the potatoes have been artificially colored blue. Participants are asked to rate the flavor of each serving, using a scale between 10= extremely delicious and 1= repulsive tasting. Data is given in the below table 01.

Table 01: Food Taste Score

Participant	White Potatoes	Blue Potatoes
1	8	5
2	9	4
3	9	8
4	6	8
5	10	7
6	8	7
7	7	4
8	8	6
9	5	6
10	10	7
11	10	8
12	7	6
13	8	8
14	10	6
15	6	3

Conduct a suitable test to determine whether or not, the color of food effect people's judgment of how good that the food tastes and critically comment on your answers.
(At α=0.05)

[25 marks]

2.

a) Most students do not gain weight during their first year of University. A nutritionist wonders if this is due to the types of food served in campus cafeteria. She compares the gained weights during the academic year by 10 randomly selected new male students in each of two groups: lives and eat at home and lives in campus and eat in campus cafeteria. Table 02 shows the gained weights in kilograms by each student.

Table 02: Weight Gain of Male Students

Eats at Home	Eats in Campus Cafeteria
0.9	2.3
1.8	4.1
0.0	5.5
1.4	0.0
0.0	3.6
2.3	4.5
0.9	3.2
1.8	2.3
4.5	1.8
2.3	4.1

Perform a suitable test to determine the nutritionist claim?

b) Then nutritionist collects data for females as well. She wants to see if meal site or gender or both affect to weight gain. Table 03 shows the data for females.

Table 03: Weight Gain of Female Students

Eats at Home	Eats in Campus Cafeteria
1.8	1.8
0.0	6.4
1.4	2.3
2.7	4.1
1.4	0.9
0.9	3.2
4.1	1.8
0.9	5.0
0.0	1.4
0.5	0.0

Analyze the above case by applying a suitable test and write a report based on your findings.

[40 marks]

3. An experiment was conducted to determine the extent to which the growth rate of certain fungus could be affected by filling test tubes containing the same medium at the same temperature with different gasses. Thirty such experiments were performed each of three gases, and the growth rate over these thirty tests were used as the response. The ***fungus.mtw*** worksheet gives the molecular weight of each gas used and the growth rate in milliliters per hour for the thirty tests in separate Minitab worksheet.

a) Analyze the data given in the ***fungus.mtw*** worksheet and write a report based on your results.

b) Find three regression equations to predict the growth rate using molecular weight for each gas.

[35 marks]