

Course No: 101  
Course Title: Principles of statistics  
Date: 17 – 01 – 2011  
No. of Questions: (5+1)  
Time: 2:00 hour  
Using Calculator (Yes)

University of Palestine



Final Exam  
1<sup>st</sup> semester 2010/2011  
Total Grade: 50

Instructor Name

Student No.: \_\_\_\_\_  
Student Name: \_\_\_\_\_  
College Name: \_\_\_\_\_  
Dep. / Specialist: \_\_\_\_\_  
Using Dictionary (No)

**First Question**

**No. of Branches (5)**

**"10 Marks"**

True or False? If False, correct it.

- 1- Level of confidence is another name for level of significance.
- 2- A scatter diagram is a graphic device for detecting and analyzing association between two variables.
- 3- In regression Coefficient of Determination is the square of the correlation coefficient.
- 4- The coefficient of determination can have values between -1 and +1.
- 5- With respect to regression, the sample correlation coefficient  $r$  is the proportion of the variation in  $Y$  which is explained by  $Y$ 's linear dependence on  $X$ .

**Second Question**

**No. of Branches (1)**

**"10 Marks"**

- Suppose that Dr. James learns from a national survey that the average undergraduate student in the United States spends 6.75 hours each week on the Internet - composing and reading e-mail, exploring the Web and constructing home pages. Dr. James is interested in knowing how Internet use among students at George Mason University compares with this national average. Dr. Tate randomly selects a sample of only 10 students. Each student is asked to report the number of hours he or she spends on the Internet in a typical week during the academic year.

student	no. of hours ( $x$ )
a	8
b	7
c	11
d	2
e	8
f	10
g	18
h	9
i	13
j	6

**Third Question**

**No. of Branches (1)**

**"10 Marks"**

Subjects are asked to memorize 40 noun pairs. Ten subjects are given a heuristic to help them memorize the list, the remaining ten subjects serve as the control and are given no help. The ten experimental subjects have a  $\bar{X} = 25$  and a  $SS = 110$ . The ten control subjects have a  $\bar{X} = 21$  and a  $SS = 115$ . Test the hypothesis that the experimental group differs from the control group. Give a 95% confidence interval for the difference between groups.

**Fourth Question****No. of Branches (1)****"10 Marks"**

For the following data calculate chi square value, and df.

	females	males	Total
accept	3520	270	3790
reject	1333	186	1519
Total	4853	456	5309

**fifth Question****No. of Branches (1)****"10 Marks"**

That is the out put of SPSS , Look at the two table and answer the following question:

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 pre	53.2087	5309	13.73131	.18845
post	61.1900	5309	15.79100	.21672

		Paired Differences		t	df	Sig. (2-tailed)	
		Std. Error Mean	95% Confidence Interval of the Difference				
			Lower	Upper			
Pair 1	pre - post	.02827	-8.03672	-7.92589	-282.343	5308	.000

- What is the name of this test
- What is the t value.
- What is the significant value.
- Are there any statistically significant differences between the pre and post test, and towards pre or post test.

**+ Question****No. of Branches (1)****"5 Marks"**

- ✦ Let's set our criterion at 0.05,  $\mu = 455$ ,  $\sigma = 100$ , "n"= 144, Standard error of the mean is 8.33, Sample mean = 535, what's the value of "Z".

**With best wishes (Aaed Al- Raba'i)**

## t-test table

Degrees of Freedom	Probability, p			
	0.1	0.05	0.01	0.001
8	1.86	2.31	3.36	5.04
9	1.83	2.26	3.25	4.78
18	1.73	2.10	2.88	3.92
19	1.73	2.09	2.86	3.88
20	1.72	2.09	2.85	3.85
40	1.68	2.02	2.70	3.55
infinity	1.65	1.96	2.58	3.29

note: The formula :

$$S = \sqrt{\frac{\sum (X - \bar{X})^2}{(n - 1)}}$$

$$t_c = \frac{\bar{X} - \mu}{S_{\bar{x}}}$$

$$z = \frac{\bar{X} - \mu}{\sigma_{\bar{x}}}$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

$$S_{\bar{x}} = \frac{s}{\sqrt{n}}$$

$$s_p^2 = \frac{SS_1 + SS_2}{df_1 + df_2}$$

$$SE = \sqrt{\frac{s_p^2}{n_1} + \frac{s_p^2}{n_2}}$$

$$t = \frac{(\bar{X}_1 - \bar{X}_2) - (\mu_1 - \mu_2)}{s_{\bar{x}_1 - \bar{x}_2}}$$

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

With best wishes (Aaed Al- Raba'i)