

大葉大學九十三年學年度轉學招生考試試題紙							
系組別	日\第二部	年級	考試科目 (中文名稱)	考試日期	節次	備註	共5頁
企業管理學系	日間、第二部	三	統計學	7月19日	4 (13:30~14:50)	可攜帶不可程式計算機，但請詳列計算步驟，否則一概不計分	第1頁

註：考生可否攜帶計算機或其他資料作答，請在備註欄註明（如未註明，一律不准攜帶）

1. Assume that x is a binomial random variable with $n=100$ and $p=0.45$. Use a normal approximation to find the following:

a. $p(x \leq 45)$ b. $P(40 \leq x \leq 50)$ c. $P(x \geq 38)$

(15%)

2. Are all employees equally likely to have accidents? A portion of the research results is summarized in the accompanying contingency table.

		KIND OF ACCIDENT		
		Sprain	Burn	Cut
AGE	Under 25	9	17	5
	25 and Over	61	13	12

From the contingency table, the researcher concluded that there is a relationship between an employee's age and the kind of accident that the employee may have. Do you agree? Test using $\alpha = 0.05$.

(15%)

3. The data in the accompanying table resulted from an experiment that utilized a completely randomized design.

Treatment 1	Treatment 2	Treatment 3
3.8	5.4	1.3
1.2	2.0	0.7
4.1	4.8	2.2
5.5	3.8	
2.3		

Test the null hypothesis that $\mu_1 = \mu_2 = \mu_3$, where μ_i represents the true mean for treatment i , against the alternative that at least two of the means differ. Use $\alpha = 0.01$.

(20%)

4. Two random samples, each containing 11 measurements, were drawn from normal populations processing means μ_1 and μ_2 , respectively, and a common variance σ^2 . The sample means and variances are as follows:

Population 1	Population 2
$\bar{x}_1 = 60.4$	$\bar{x}_2 = 65.3$
$s_1^2 = 31.4$	$s_2^2 = 44.82$

Find a 90% confidence interval for the difference between the population means.

(15%)

5. The time between unplanned shutdowns of a power plant has an exponential distribution with a mean of 20 days. Find the probability that the time between two unplanned shutdowns is

- less than 14 days.
- more than 21 days.
- less than 7 days.

(15%)