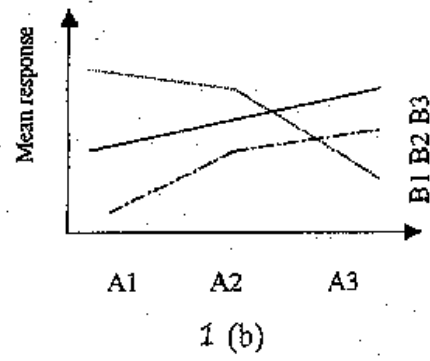
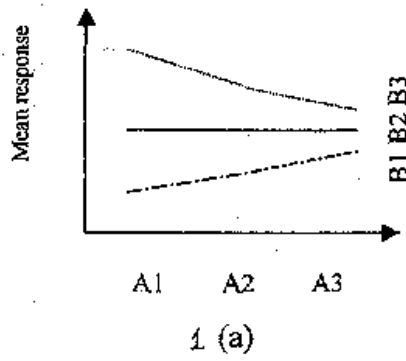


國立中央大學八十九學年度碩士班研究生入學試題卷

133 所別： 企業管理學系 不分組 科目： 統計學 共 / 頁 第 / 頁

參考
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1. A miner is trapped in a mine containing three doors. The first door leads to a tunnel which takes him to safety after two-hour's travel. The second door leads to a tunnel which returns him to the mine after three-hour's travel. The third door leads to a tunnel which returns his mine after 5 hours. Assuming that the miner is at all times equally likely to choose any one of the doors, what is the expected length of time until the miner reaches safety? (20%)
2. The service times for customers coming through a checkout counter in a retail store are independent random variables with a mean of 1.5 minutes and a variance of 1.0. Please evaluate the possibility that 100 customers can be serviced in less than 2 hours of total service time. (20%)
3. In a two-way completely randomized experimental design, if the interaction effect is significant, how to interpret the results of main effect as shown in the Figure 1(a) and 1(b) respectively? (20%)



4. Consider to modeling the upper trend as a simple linear regression $Y = \beta_0 + \beta_1 t + \varepsilon$, $\beta_1 > 0$, where $\varepsilon \sim N(0, \sigma^2)$. How to get the $100*(1-\alpha)\%$ lower prediction limit for the first passage time t^* , that is, the earliest moment when the future observation Y will reach a boundary Y_0 . (20%)

5. There are two approaches to evaluate the employee's performance. What kind statistic can be employed to test the consistency of ranking?

Describe the testing procedure using the following data:

Employee	1	2	3	4	5	6	7	8
Method A	7	4	2	6	1	3	8	5
Method B	1	5	3	4	8	7	2	6

(10%)

6. If we get the mean rate of return and standard deviation of rate of return for various stocks, $\{\mu_i, \sigma_i, i=1, 2, \dots, n\}$, how to determine the efficient set of portfolios for an investor? Describe your procedure. (10%)

