

國立中央大學 110 學年度碩士班考試入學試題

所別： 工業管理研究所 碩士班 不分組(一般生)

共 2 頁 第 1 頁

科目： 生產作業與管理

本科考試禁用計算器

*請在答案卷(卡)內作答

一、選擇題 (15 pts) 每小題3分。

請注意！回答時請標明題號，並以大寫 A、B、C、D、E 回答。

1. In order to increase the responsiveness of a forecast made using the moving average technique, the number of data points in the average should be:
A) decreased
B) increased
C) multiplied by a larger alpha
D) multiplied by a smaller alpha
E) eliminated if the MAD is greater than the MSE
2. Which is not a characteristic of exponential smoothing?
A) smoothes random variations in the data
B) weights each historical value equally
C) has an easily altered weighting scheme
D) has minimal data storage requirements
E) smoothes real variations in the data
3. Simple exponential smoothing is being used to forecast demand. The previous forecast of 66 turned out to be five units less than actual demand. The next forecast is 66.6, implying a smoothing constant, alpha (α), equal to:
A) 0.01
B) 0.10
C) 0.12
D) 0.20
E) 0.60
4. Which of the following possible values of alpha (α) would cause exponential smoothing to respond the most quickly to forecast errors?
A) 0
B) 0.01
C) 0.05
D) 0.10
E) 0.20
5. One reason for using the Delphi method in forecasting is:
A) to avoid premature consensus (bandwagon effect)
B) to achieve a high degree of accuracy
C) to maintain accountability and responsibility
D) to be able to replicate results
E) all of the above

二、(10 pts) Please answer the following questions.

- (a) (5 pts) What is a decision tree?
- (b) (5 pts) When is a decision tree a better method for analyzing a decision situation than a payoff table?

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三、(15 pts) Please answer the following questions.

- (a) (5 pts) What is a process layout? What are its advantages and disadvantages?
- (b) (5 pts) What is a product layout? What are its advantages and disadvantages?
- (c) (5 pts) What is a cellular layout? What are its benefits and limitations?

四、(10 pts) What is the purpose of quality function deployment (QFD)? How does it achieve that purpose?

五、(15 pts) The following table contains figures on the monthly volume and unit costs for a random sample of 16 items. Develop an A-B-C classification for these items:

Item	Unit Cost	Usage per month
K34	\$10	200
K35	25	600
K36	36	150
M10	16	25
M20	20	80
Z45	80	200
F14	20	300
F95	30	800
F99	20	60
D45	10	550
D48	12	90
D52	15	110
D57	40	120
N08	30	40
P05	16	500
P09	10	30

六、(15 pts) A bakery buys flour in 25 pound bags. The bakery uses 1,215 bags per year. Ordering cost is \$10 per order, and annual carrying cost is \$75 per bag.

- a. Determine the economic order quantity (EOQ). (5%)
- b. Based on the EOQ model, what is the average number of bags on hand? (4%)
- c. Determine the number of orders per year. (3%)
- d. Determine the total cost of ordering and carrying flour. (3%)

七、(10 pts) What are the two basic assumptions that must be satisfied to use a process capability index?

八、(10 pts) Explain Type I error and Type II error when using a control chart.