

國立中央大學 112 學年度碩士班考試入學試題

所別： 工業管理研究所碩士班

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科目： 生產作業與管理

一、選擇題 (30 pts) 每小題 3 分。單選題，選擇題請在答案卷上作答
請注意！回答時請標明題號，並以大寫 A、B、C、D、E 回答。
未標明題號者，以零分計算。

1. Which of the following is not a characteristic of service operations?
A) easy measurement of productivity
B) high customer contact
C) high labor content
D) intangible output
E) low uniformity of output
2. Which of the following is true?
A) Corporate strategy is shaped by functional strategies.
B) Corporate mission is shaped by corporate strategy.
C) Functional strategies are shaped by corporate strategy.
D) External conditions are shaped by corporate mission.
E) Corporate mission is shaped by functional strategies.
3. Which one of these is not used in decision-making under risk?
A) EVPI(Expected Value of Perfect Information)
B) minimax regret
C) decision trees
D) EMV(Expected Monetary Value)
E) All are used for risk situations.
4. Which of the following features would not generally be considered common to all forecasts?
A) Assumption of a stable underlying causal system.
B) Actual results will differ somewhat from predicted values.
C) Historical data is available on which to base the forecast.
D) Forecasts for groups of items tend to be more accurate than forecasts for individual items.
E) Accuracy decreases as the time horizon increases.
5. Service design generally differs from product design in which of the following ways?
A) Service design tends to focus on tangible factors.
B) There is less latitude in detecting and correcting errors prior to delivery.
C) There is a lesser requirement to be aware of competitors' offerings.
D) There is less visibility to customers.
E) There is no difference.

注意：背面有試題

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6. "Must have", "expected" and "excitement" characteristics are categories in the _____ model.
- A) Kano
 - B) Bi-polar
 - C) Pareto
 - D) Quality
 - E) Service Matrix
7. Given the following information, what would efficiency be?
Effective capacity = 80 units per day
Design capacity = 100 units per day
Utilization = 48%
- A) 20%
 - B) 35%
 - C) 48%
 - D) 60%
 - E) 80%
8. Which of the following is not true about process layouts when they are compared to product layouts?
- A) higher in-process inventories
 - B) lower span of supervision
 - C) lower rates of output
 - D) more involved cost accounting
 - E) lower unit costs
9. What will be the effect on sample size in work sampling of increasing the permissible maximum error?
- A) no effect on sample size
 - B) sometimes increase and sometimes decrease the sample size, depending on the analyst
 - C) impossible to say without additional information
 - D) increase the number of observations needed
 - E) decrease the number of observations needed
10. A location analysis has been narrowed down to two locations, Akron and Boston. The main factors in the decision will be the supply of raw materials, which has a weight of .50, transportation cost, which has a weight of .40, and labor cost, which has a weight of .10. The scores for raw materials, transportation, and labor are for Akron 60, 80, and 70, respectively; for Boston 70, 50, and 90, respectively. Given this information and a minimum acceptable composite score of 75, we can say that the manager should:
- A) be indifferent between these locations
 - B) choose Akron
 - C) choose Boston
 - D) reject both locations
 - E) build a plant in both cities

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二、(10 pts)

A manager must decide between two location alternatives, Boston and Chicago. Boston would have annual fixed costs of \$70,000, transportation costs of \$60 per unit, and labor and material costs of \$200 per unit. Chicago would have annual fixed costs of \$90,000, transportation costs of \$40 per unit, and labor and material costs of \$170 per unit. Revenue will be \$300 per unit.

- (a) (5 pts) Which alternative would yield the higher profit for an annual demand of 3,000 units?
- (b) (5 pts) Would the two locations yield the same profit at a certain volume? If so, at what volume would that be?

三、(10 pts)

Demand for the last four months was:

Month	March	April	May	June
Demand	6	8	10	8

- (a) (3 pts) Predict demand for July using a 3-period moving average each of these methods:
- (b) (3 pts) Predict demand for July using exponential smoothing with alpha equal to .20 (use a naive forecast for April for your first forecast)
- (c) (4 pts) If the naive approach had been used to predict demand for April through June, what would MAD have been for those months?

四、(8 pts)

Control limits are based on the sampling distribution in statistical process control. It is important to recognize that because any limits will leave some area in the tails of the distribution, there is a small probability that a value will fall outside the limits even though only random variations are present. The percentage is sometimes referred to as the probability of Type I error. Please briefly describe the concept of Type I error.

五、(12 pts)

Please list and briefly explain (a) the seven basic quality tools (7%), and (b) the problem-solving process of six sigma methodology (5%).

六、(10 pts)

Master scheduling is one of the three primary inputs in MRP. Please list and briefly describe (a) the inputs to the master scheduling (5%), and (b) the output of the master scheduling (5%).

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七、(20 pts)

The assumptions of the economic production quantity (EPQ) model are similar to those of the economic ordering quantity (EOQ) model, except that instead of orders received in a single delivery, units are received incrementally during the production. Now consider a toy manufacturer who uses 48,000 rubber wheels per year for its popular dump truck series. The firm makes its own wheels, which it can produce at a rate of 800 per day. The toy trucks are assembled uniformly over the entire year. Carrying cost is \$2 per wheel per year. Setup cost for a production run of wheel is \$90. The firm operates 240 days per year. Please determine (a) the optimal production quantity (lot-size) per run (5%), (b) the minimum total annual cost for carrying and setup (5%), (c) the cycle time for the optimal run size (5%), and (d) the run time (5%).

注意：背面有試題