

國立中央大學 111 學年度碩士班考試入學試題

所別：工業管理研究所 碩士班 工業管理組(一般生)

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科目：生產作業與管理

1. (5 points) Determine the multifactor productivity for the combined input of labor, materials, and machine time using the following data: Output: 7,040 units, Input: labor \$1,000, Materials \$520, and Overhead \$2,000.
2. (5 points) A retailer uses simple exponential smoothing with $\alpha = 0.2$ to forecast demand. The forecast for the week of May 1 was 600 units whereas the actual demand turned out to be 650 units. Calculate the demand forecast for the week of May 8.
3. (10 points) Please describe the key concepts of KANO model using a graphical approach.
4. (10 points) Please name the two main factors that influence process selection.
5. (20 points) Company ABC has introduced a new production system that reduces processing time for each unit, so that output is increased by 20% with less material, but one additional worker required. Under the old production system, five workers could produce 60 units per hour. Labor costs are \$12/hour, and material input was previously \$16/unit. For the new system, material is now \$10/unit. Overhead is charged at 1.8 times direct labor cost. Finished units sell for \$30 each. What increase in productivity is associated with the new production system?

6. 選擇題 (33 pts) 每小題 3 分。單選題，請將選擇題答案寫在答案卷上
請注意！回答時請標明題號，並以大寫 A、B、C、D、E 回答。

- i. Which of the following is a direct input into capacity requirements planning? (I) the master production schedule; (II) routing information; (III) current shop loads; (IV) planned-order releases.
A) II, III, and IV only
B) I, II, and IV only
C) I, III, and IV only
D) I and II only
E) I, II, III, and IV
- ii. Scheduled receipts differ from planned receipts in that scheduled receipts:
A) have longer lead times.
B) involve orders that have not yet been placed.
C) have not been pegged with actual customer orders.
D) involve orders that have already been placed.
E) involve exceptions to order quantity policies.
- iii. In MRP, under lot-for-lot ordering, planned-order receipts are:
A) identical to scheduled receipts.
B) identical to net requirements.
C) open orders (that is, ordered before the first time bucket, but not delivered yet).
D) gross requirements.
E) available-to-promise inventory.
- iv. The identification of parent items that have generated a given set of material requirements for an item is called:
A) paternity.
B) pegging.

注意：背面有試題

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- C) requirement I.D.
- D) relationship tracking.
- E) master scheduling.

- v. In doing aggregate planning for a firm producing paint, the aggregate planners would most likely deal with:
- A) just gallons of paint, without concern for the different colors and sizes.
 - B) gallons of paint, but be concerned with the different colors to be produced.
 - C) gallons, quarts, pints, and all the different sizes to be produced.
 - D) all the different sizes and all the different colors by size.
 - E) all of the different colors targeted for different markets.
- vi. Which of the following is not one of the assumptions of the basic EOQ model?
- A) Annual demand requirements are known and constant.
 - B) Lead time does not vary.
 - C) Each order is received in a single delivery.
 - D) Quantity discounts are available.
 - E) Ordering and holding costs have been estimated reasonably accurately.
- vii. In the A-B-C classification system, items which account for about 15 percent of the annual dollar value, but which account for a majority of the inventory items, would be classified as:
- A) A items.
 - B) B items.
 - C) C items.
 - D) A items plus B items.
 - E) B items plus C items.
- viii. Average demand for a particular item is 1,200 units per year. It costs \$100 to place an order for this item, and it costs \$24 to hold one unit of this item in inventory for one year. If the fixed-order-interval model is chosen in this instance, how often (on average) will this item be ordered?
- A) once a month
 - B) once every other month
 - C) twice a month
 - D) twice every three months
 - E) three times every two months
- ix. A system of lights used at each workstation to signal problems or slowdowns is:
- A) a command and control center.
 - B) automation.
 - C) andon.
 - D) a pull system.
 - E) kanban.
- x. An OC curve shows:
- A) average outgoing quality.
 - B) the average outgoing quality limit.
 - C) out-of-control criteria.
 - D) operating control.
 - E) probability of acceptance versus lot quality.

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- xi. The scheduling sequencing rule which always results in the lowest average completion (flow) time is the:
- A) first come, first served (FCFS) rule.
 - B) shortest processing time first (SPT) rule.
 - C) earliest due date first (EDD) rule.
 - D) least slack per operation first (S/O) rule.
 - E) run until slack happens (RUSH) rule.
7. (12 pts) Please answer the following questions.
- (a) (6 pts) What is centralized purchasing? What are its advantages?
 - (b) (6 pts) What is decentralized purchasing? What are its advantages?
8. (5 pts) What is Taguchi Loss Function?