准帶項目請打「V」	
V	簡單型計算機

本試題共　2　頁，　　大題

I　Definition of Terms (2% each, 20 Total)

1 Concurrent engineering

2 Bullwhip effect

3 Kaizen

4 RFID

5 Recycling

6 Quality deployment　function

7 5W1H

8 Cause-and-effect diagrams

9 Lean production

10 JIT

II　True or False (O or X) (2% each, 20 Total)

1. The plan-do-check-act (PDCA) cycle is also known as the Shewhart wheel or the Deming wheel.
2. Quality at the source refers to each worker being responsible for the quality of their work.
3. EVPI is the expected financial value of the regret for the optimal decision under risk.
4. JIT attempts to balance inventory levels with the smaller lot sizes it requires.
5. The theoretical basis for a control chart is a sampling distribution with central tendencies and dispersion.
6. The Pareto chart is based on the idea that a few factors usually account for a large percentage of the total number defects or problems.
7. In effective supply chains, organizations and functions operate in a dependent relationship
8. If the production rate in an economic production lot size model is very much larger than the consumption rate, the results are practically the same for economic production lot size and EOQ.
9. Because of the pyramid relationship for all components in an MRP system, it is appropriate to provide safety stocks at all levels, since this would help to reduce the setup costs required to produce inventory at each level.
10. An assembly line may have workstations in parallel but will always have workstations in series.

III　Choosing the best solution for each question (2% each, 10 Total)

1. The symbols of a flow process chart stand for: (A) inspection, delay, transportation, storage, operation (B) transportation loaded, search, grasp, store, perform operation. (C) release, transport. store, grasp, search (D) circle, arrow, pentagon, square, triangle.

2. Monitoring the temperature of tomatoes during shipment would best be done using: (A) RFID tags (B) Bar codes (C) Universal Product Codes (UPC) (D) GPS.

3. Which one of the following is not a requirement for effective inventory management? (A) A system to keep track of inventory on hand (B) A classification system for inventory items (C) Reasonable estimates of holding and shortage costs (D) Using an EOQ model for determining reorder point.

4. Warranty service, processing of complaints, and costs of litigation are examples of: (A) appraisal costs (B) internal failure costs (C) external failure costs (D) replacement costs.

5. A bottlenecked operation will result in (A) Job shop efficiency (B) Increased capacity (C) Unbalanced Systems (D) Top Heavy operations.

IV Problems (50%)

1. A local distributor for a national tire company expects to sell approximately 9600 steel belted radial tires of a certain size and tread design next year. Annual carrying cost is $ 16 per tire, and ordering cost is $ 75. The distributor operates 288 days a year.
(a) What is EOQ? (5%)
(b) How many times per year does the store reorder? (5%)
(c)What is the length of an order cycle? (5%)
(d) What is the total annual cost if the EOQ quantity is ordered? (5%)

2. Due to the extreme cost of interrupting production, a firm has two standby machines available in case a particular machine breaks down. The machine in use has a reliability of 0.94, and the backups have reliabilities of 0.90 and 0.80. In the event of a failure, either backup can be pressed into service. If one fails, the other backup can be used. Please compute the system reliability.(10%)

3.The task shown in the following precedence diagram are to be assigned to workstations with the intent of minimizing idle time. Management has designed an output rate of 275 units per day. Assume 440 minutes are available per day.
(a) Determine the appropriate cycle time. (5%)
(b) What is the minimum number of stations possible? (5%)
(c) Assign tasks using the "positional weight" rule: Assign tasks with highest following times (including a task's own time) first. Break ties using greatest number of following tasks. (5%)
(d) Compute efficiency. (5%)