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

1. 解釋名詞 (16 pts) Explain the following terms.
   a. (4 pts) sustainability
   b. (4 pts) outsourcing
   c. (4 pts) order qualifiers
   d. (4 pts) SWOT

2. 計算題 (12 pts) The following table shows data on the average number of customers processed by several bank service units each day. The hourly wage rate is $25, the overhead rate is 1.0 times labor cost, and material cost is $5 per customer.

Unit	Number of Employees	Customers Processed/Day
A	8	72
B	10	80
C	16	120

Compute the labor productivity and the multifactor productivity for each unit. Use an eight-hour day for multifactor productivity. 【請將計算過程寫出來，否則不計分】

3. 計算題 (12 pts) Two different forecasting techniques (F1 and F2) were used to forecast demand for cases of bottled orange juice. Actual demand and the two sets of forecasts are as follows.

Period	Demand	Predicted Demand F1	Predicted Demand F2
1	78	76	76
2	85	78	78
3	80	82	80
4	84	81	82
5	79	82	84
6	82	80	86
7	90	81	88
8	88	84	90

   a. (4 pts) Compute the MAD for each set of forecasts. Given your results, which forecast appears to be more accurate? 【請將計算過程寫出來，否則不計分】
   b. (4 pts) Compute the MSE for each set of forecasts. Given your results, which forecast appears to be more accurate? 【請將計算過程寫出來，否則不計分】
   c. (4 pts) Compute the MAPE for each set of forecasts. Given your results, which forecast appears to be more accurate? 【請將計算過程寫出來，否則不計分】

注意：背面有試題

4. 計算題 (10 pts) A clothing manufacturer produces men's clothes at four locations in Taiwan. The relative locations have been determined, as shown in the table below. The manufacturer now must determine the location of a central shipping point for blots of cloth. Weekly quantities to be shipped to each location are also shown in the table. Determine the coordinates of the location that will minimize distribution costs. 【請將計算過程寫出來，否則不計分】

Location	(x, y)	Weekly Quantity
A	(15, 17)	150
B	(16, 19)	200
C	(13, 19)	250
D	(19, 14)	300

5. 申論題(10 pts) Briefly describe the problem-solving process of six sigma methodology.

6. 申論題(10 pts) Scatter diagram is one of the commonly used quality tools for problem solving and process improvement. Please briefly describe the scatter diagram technique.

7. 申論題(10 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.

8. 申論題(10 pts) MRP outputs include primary reports and secondary reports. Please briefly describe these two types of reports.

9. 申論題(10 pts) Briefly describe the A-B-C classification system in inventory management.

注意:背面有試題