

國立中央大學104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) 科目：生產作業與管理 共一頁 第一頁

本科考試禁用計算器

*請在答案卷(卡)內作答

參考用

- (20 points) Please explain the following terms:
 - (5 points) quality at source
 - (5 points) average outgoing quality limit
 - (5 points) disintermediation
 - (5 points) poka-yoke
- (6 points) Under what circumstances will the Hurwicz method become the Maximax method and the Maximin method respectively?
- (6 points) Explain how the sample size, n , and the acceptance level, c , are determined in a variable-sampling plan.
- (18 points) The ABC Motor Company produces small motors at a processing cost of \$38 per unit. Defective motors can be reworked at a cost of \$18. The company produces 100 motors per day and averages a yield of 75 percent good-quality motors, resulting in 25 percent defects, all of which can be reworked prior to shipping to customers. The company wants to examine the effects of the following approaches on its QPR (Quality-Productivity Ratio). Please show the effects that each of the following approaches has on the ABC Motor Company's QPR. Please also show which one can result in the greatest increase in the ABC Motor Company's QPR. 【請將計算過程與說明寫出來，否則不計分，換言之，只寫答案不計分】
 - Increase the production rate to 200 motors per day.
 - Reducing the processing cost to \$28, and the rework cost to \$8.
 - Increase through quality improvement the product yield of good-quality products to 85 percent.
 - The combination of b and c.
- (20 pts) Company XYZ 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?
- (10 pts) For the historical data given below, what would the naive forecast be for period 6?

Period	Demand	Period	Demand
1	101	4	104
2	102	5	105
3	103	6	?

- (20 pts) 假設 W 產品須依序經由生產線的四個工作站 (A、B、C、D) 加工，每一工作站各有不同數目、相同功能及不同加工時間的機台數台，W 產品需在每一工作站的其中一台機器加工，詳細機台數及機器的加工時間如下表：

工作站	機台	加工時間 (分鐘/工件)	工作站	機台	加工時間 (分鐘/工件)
A	A1	10	C	C1	15
	A2	15		C2	20
B	B1	20		C3	30
	B2	15	D	D1	5
	B3	20		D2	10
	B4	10		D3	20

- 假如生產系統正常運轉，每天八小時可生產多少 W 產品？(10 分)
- 在不影響生產率的情形下，哪些機台可以搬離生產線？(10 分)