

國立臺北大學 115 學年度碩士班一般入學考試試題

系(所)組別：會計學系

科目：成本與管理會計學

第1頁 共3頁

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1. Answer each of the following independent questions and show all relevant computations on the answer sheet. (25%)

- (1) A company is looking to purchase and replace a fixed asset for \$2,100,000. It will sell the asset that will be replaced for \$410,000 but will incur a \$10,000 gain upon that sale. It must also commit \$300,000 of working-capital to the investment. The firm's tax rate is 20%.

Required:

What is the amount of the relevant initial investment?

- (2) The NTPU Company orders most of its items in lot sizes of 10 units. Average annual demand per side of beef is 720 units per year. Ordering costs are \$25 per order with an average purchasing price of \$100. Annual inventory carrying costs are estimated to be 40% of the unit cost.

Required:

Determine the annual cost savings if NTPU Company changes its order size from 10 units to the economic order quantity.

- (3) NTPU Corporation makes miniature statues of the Empire State Building from cast iron. Sales total 50,000 units a year. The statues are finished either rough or polished, with an average demand of 60% rough and 40% polished. Iron ingots, the direct material, costs \$5 per pound. Processing costs are \$300 to convert 30 pounds into 60 statues. Rough statues are sold for \$17 each, and polished statues can be sold for \$19 or engraved for an additional cost of \$5. Polished statues can then be sold for \$40.

Required:

Determine whether NTPU Company should sell the engraved statues. Why?

- (4) NTPU Corp is committed to its quality program. It works with all areas of the company to establish sound quality programs within reasonable budget guidelines. For 2026, it has budgeted \$1,000,000 for prevention costs and \$900,000 for appraisal costs. Internal failure has a budget of \$100 per failed item, while external failure has a total budget of \$600,000. Product Testing has proposed to management a change in the 2026 budget for a new method of testing products. If management decides to implement the new method, \$1.5 per unit of appraisal costs will be saved, up to a level of 150,000 tests. No additional savings are expected past the 150,000 level. The new method involves \$95,000 in training costs and \$65,000 in yearly testing supplies. Traditionally, 5% of all completed items have to be reworked. External failure costs average \$120 per failed unit. The company's average external failures are 1% of units sold. The company carries no ending inventories.

Required:

How much do internal failure costs change, assuming 500,000 units are tested under the new method and it reduces the amount of unacceptable units in the manufacturing process by 40%?

- (5) LUKE is considering purchasing a new computer network for \$82,000. It will require additional working capital of \$13,000. Its anticipated eight-year life will generate additional client revenue of \$33,000 annually with operating costs, excluding depreciation, of \$15,000. At the end of eight years, it will have a salvage value of \$9,500 and return \$5,000 in working capital. Taxes are not considered. The company has a required rate of return of 14%.

Required:

What is the net present value of the proposed investment? What is the internal rate of return?

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第2頁 共3頁

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- (6) NTPU Corporation manufactures two types of smartphone: ZEN-PRO, designed for commercial customers, and ZEN-HOUSE, designed for residential customers. Budgeted and actual operating data for the year 2025 are presented below:

Static Budget	ZEN-PRO	ZEN-HOUSE	Total
Number sold	20,000	80,000	100,000
Contribution margin	\$4,600,000	\$15,200,000	\$19,800,000
Actual Results	ZEN-PRO	ZEN-HOUSE	Total
Number sold	21,500	64,500	86,000
Contribution margin	\$6,665,000	\$14,190,000	\$20,855,000

Required:

Compute the sales-mix variance and the sales-quantity variance, by type of smartphone and in total, using the contribution margin (Use “F” to represent a favorable variance and “U” to represent an unfavorable variance).

2. Answer each of the following independent questions and show all relevant computations on the answer sheet. (25%)

- (1) NTPU Inc. manufactures only specific orders. It uses a standard cost system. During one large order for the airport authority, an unusual number of signs were spoiled. The normal spoilage rate is 10% of units started. The point of first inspection is half way through the process, the second is three-fourths through the process, and the final inspection is at the end of the process. Other information about the job is as follows:

Signs started	3,000	
Signs spoiled	450	
Direct materials put into process at beginning		\$ 60,000
Conversion costs for job		\$120,000
Standard direct material costs per sign		\$27
Standard conversion cost per sign		\$54
Average point of spoilage is the 3/4 completion point		
Average current disposal cost per spoiled sign		\$15

Required:

Make necessary journal entries to record all spoilage.

- (2) TSMC has budgeted construction overhead for August of \$435,000 for fixed costs. Actual costs for the month totaled for \$450,000 for fixed. Allocated fixed overhead totaled \$430,000. The company tracks each item in an overhead control account before allocations are made to individual jobs. The fixed overhead spending variance for August was \$15,000 unfavorable for fixed.

Required:

Make journal entries to record the actual costs incurred as well as the variances for August.

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第3頁 共3頁

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(3) MILKBOTTLE bought a 2,000-acre island for \$10,000,000 and divided it into 200 equal size lots. As the lots are sold, they are cleared at an average cost of \$5,000. Storm drains and driveways are installed at an average cost of \$8,000 per site. Sales commissions are 10% of selling price. Administrative costs are \$850,000 per year. The average selling price was \$160,000 per lot during 2025 when 50 lots were sold. During 2026, the company bought another 2,000-acre island and developed it exactly the same way. Lot sales in 2026 totaled 300 with an average selling price of \$160,000. All costs were the same as in 2025.

Required:

Determine operating income for both years using both absorption costing and variable costing.

3. Linda Company reaches its breakeven point at \$2,000,000 of revenues. At present, it is selling 60,000 units. The unit variable cost is \$40 and the total fixed cost is \$400,000.

Required:

- (1) Compute the contribution margin ratio. (4%)
- (2) Compute the unit price. (4%)
- (3) Compute the margin of safety ratio and the degree of operating leverage. (8%)
- (4) What is the relationship between profit ratio, contribution margin ratio and margin of safety ratio? (4%)

4. Taipei Company produces a special toy. The various unit costs are as follows:

Direct material	\$160
Direct labor	\$220
Variable manufacturing overhead	\$100
Fixed manufacturing overhead	\$160
Variable marketing expense:	16% of the unit price

Suppose Taipei uses a 25% markup on the full unit cost. Compute the unit price of the toy. (10%)

5. Agnetha division is an investment center of Abba Company. Agnetha collected the following information about its performance:

Profits	\$200,000
Investment turnover	5
Residual income	\$100,000

Abba's required rate of return is 10%.

Required:

- (1) Compute the return on investment of Agnetha division. (10%)
- (2) Compute the return on sales of Agnetha division. (10%)

