國立臺北大學 109 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2頁

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1. NTPU Company is about to enter the highly competitive personal electronics market with a new optical reader. In anticipation of future growth, the company has leased a large manufacturing facility and has purchased several expensive pieces of equipment. In 2018, the company's first year, NTPU budgets for production and sales of 24,000 units, compared with its practical capacity of 48,000. The company's cost data are as follows:

Variable manufacturing cost per unit:	
Direct materials	$20
Direct manufacturing labor	35
Manufacturing overhead	9
Fixed manufacturing overhead	$576,000

Required:

(1)Assume that NTPU uses absorption costing and uses budgeted units produced as the denominator for calculating its fixed manufacturing overhead rate. Selling price is set at 130% of manufacturing cost. Compute NTPU's selling price. (2%)

(2)NTPU enters the market with the selling price computed previously. However, despite growth in the overall market, sales are not as robust as the company had expected, and a competitor has priced its product $15.6 lower than NTPU's. Stark, the company's president, insists that the competitor must be pricing its product at a loss and that the competitor will be unable to sustain that. In response, NTPU makes no price adjustments but budgets production and sales for 2019 at 18,000 units. Variable and fixed costs are not expected to change. Compute NTPU's new selling price. Comment on how NTPU's choice of budgeted production affected its selling price and competitive position. (4%)

(3)Recompute the selling price using practical capacity as the denominator level of activity. How would this choice have affected NTPU's position in the marketplace? Generally, how would this choice affect the production-volume variance? (6%)

2. Hulk buys T-shirts in bulk, applies its own trendsetting silk-screen designs, and then sells the T-shirts to a number of retailers. Hulk wants to be known for its trendsetting designs, and it wants every teenager to be seen in a distinctive Hulk T-shirt. Hulk presents the following data for its first two years of operations, 2018 and 2019.

		2018	2019
1	Number of T-shirts purchased	225,500	257,000
2	Number of T-shirts discarded	20,500	24,000
3	Number of T-shirts sold (row 1 — row 2)	205,000	233,000
4	Average selling price	$ 32.00	$ 33.00
5	Average cost per T-shirt	$ 17.00	$ 15.00
6	Administrative capacity (number of customers)	4,700	4,450
7	Administrative costs	$ 1,739,000	$ 1,691,000
8	Administrative cost per customer (row 7 ÷ row 6)	$ 370	$ 380

Administrative costs depend on the number of customers Hulk has created capacity to support, not on the actual number of customers served. Hulk had 4,300 customers in 2018 and 4,200 customers in 2019.

Required:

(1)Is Hulk's strategy one of product differentiation or cost leadership? Explain briefly. (4%)

(2)Calculate the growth, price-recovery, and productivity components that explain the change in operating income from 2018 to 2019. What does each of these components indicate? (12%)

(3)Suppose that the market for silk-screened T-shirts grew by 10% during 2019. All increases in sales greater than 10% are the result of Hulk's strategic actions. Calculate the change in operating income from 2018 to 2019 due to growth in market size, product differentiation, and cost leadership. How successful has Hulk been in implementing its strategy? Explain. (4%)

(4)Calculate the amount and cost of unused administrative capacity at the beginning of 2019, based on the actual number of customers Hulk served in 2019. (4%)

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3. NTPU is considering replacing all 12 of its meat scales with new, digital ones. The old scales are fully depreciated and have no disposal value. The new scales cost $120,000 (in total). Because the new scales are more efficient and more accurate than the old scales, NTPU will have annual incremental cash savings from using the new scales in the amount of $30,000 per year. The scales have a 6-year useful life and no terminal disposal value and are depreciated using the straight-line method. NTPU requires a 6% real rate of return.

Required:

(1)Given the preceding information, what is the net present value of the new scales? Ignore taxes. (2%)

(2)Assume the $30,000 cost savings are in current real dollars and the inflation rate is 4%. Recalculate the NPV of the project. (2%)

(3)Based on your answers to requirements (1) and (2), should NTPU buy the new meat scales? (3%)

(4)Now assume that the company's tax rate is 25%. Calculate the NPV of the project assuming no inflation. (2%)

(5)Again assuming that the company faces a 25% tax rate, calculate the NPV of the project under an inflation rate of 4%. (2%)

(6)Based on your answers to requirements (4) and (5), should NTPU buy the new meat scales? (3%)

4. Taipei Company, a manufacturer of coffee tables, predicts that it will purchase 240,000 units of red oaks next year. Taipei Company estimates that 20,000 units of red oaks will be required each month. A supplier quotes a price of $10 per unit of red oak. The supplier also offers a special discount option: If all 240,000 units of red oaks are purchased at the start of the year, a discount 0f 2% off the $10 price will be given. Taipei Company can invest its cash at 10% per year. It costs Taipei Company $300 to place each purchase order.

Required:

(1)What is the opportunity cost of interest forgone from purchasing all 240,000 units at the start of the year instead of in 12 monthly purchases of 20,000 units per order? (8%)

(2)Would this opportunity cost be recorded in the accounting system? Why? (4%)

(3)Should Taipei Company purchase 240,000 units at the start of the year or 20,000 units each month? Show your calculations. (8%)

5. Sanshia Company manufactures and sells decorative lamps. In 2019, it reported the following:

Units produced and sold	3,000
Investment	$3,000,000
Markup percentage on full cost	8%
Rate of return on investment	12%
Variable cost per unit	$1,000

Required:

(1)What was the operating income in 2019? (5%)

(2)What was the full cost per unit? (5%)

(3)What was the selling price? (5%)

(4)What was the percentage markup on variable cost? (5%)

6. LRB Company has two sources of funds: long-term debt with a market and book value of 30 million issued at an interest rate of 10% and equity capital that has a market value of 20 million. The cost of equity capital for LRB Company is 12%, and its tax rate is 20%. Division A of LRB Company has the following operating results for 2019:

Operating income	$300,000
Assets	$2,500,000
Current Liabilities	$600,000

Required:

(1)What is LRB Company's weighted average cost of capital? (5%)

(2)What is Division A's Economic Value Added? (5%)

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