

# 國立臺北大學 108 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

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1. 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 2019, 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 2019 budget for a new method of testing products. If management decides to implement the new method, \$1.50 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:**

- (1). What is the adjusted budget for appraisal costs, assuming the new method is implemented and 800,000 units are tested during the manufacturing process in 2018? (3%)
  - (2). 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%? (3%)
  - (3). What would be the change in the external failure budget, assuming external failures are reduced by 60% and the same facts as in part (2)? (3%)
2. Taipei Corp makes small motorcycles. The monthly demand ranges from 80 to 100 motorcycles. The average demand is 92 motorcycles. The plant operates 300 hours a month. Each cycle takes approximately 1.5 hours. If the company adds a new line of scooters, initial demand will be 20 per month. Each scooter will take 1 hour to make. To offset approaching production capacity, expanding the assembly line is possible. This will decrease manufacturing time for all products by 20%. However, this will increase the costs of cycles from \$400 to \$500 and scooters from \$200 to \$240. The change will also cause increases in prices from \$700 to \$750 for cycles and from \$450 to \$500 for scooters.

**Required:**

- (1). What is the average waiting time for cycles if they are the only item manufactured? (3%)
  - (2). What are the average waiting times if both cycles and scooters are produced and the assembly line is not enlarged? (3%)
  - (3). What are the average waiting times if both cycles and scooters are produced and the assembly line is enlarged? (3%)
  - (4). What is the expected monthly margin without scooters if the company sells all 92 cycles it manufactures? (3%)
  - (5). Assume average sales and that sales equal production. What is the expected monthly contribution margin if scooters are made with the current assembly line? What is the expected monthly contribution margins if scooters are made with the new assembly line? (3%)
  - (6). What action do you recommend? (4%)
3. KITE assembles products from component parts. It has two departments that process all products. During January, the beginning work in process in the assembly department was half complete as to conversion and complete as to direct materials. The beginning inventory included \$12,000 for materials and \$4,000 for conversion costs. Overhead is applied at the rate of 50% of direct manufacturing labor costs. Ending work-in-process inventory in the assembly department was 40% complete. All spoilage is considered normal and is detected at the end of the process.

	<u>Assembly</u>	<u>Finishing</u>
Beginning work-in-process units	20,000	24,000
Units started this period	40,000	?
Units transferred this period	50,000	54,000
Ending work-in-process units	8,000	20,000
Material costs added	\$44,000	\$28,000
Direct manufacturing labor	\$16,000	\$24,000

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## Required:

- (1). Prepare a production cost worksheet using weighted-average for the assembly department. (18%)
- (2). Spoilage can be a significant cost for many organizations. Discuss when spoilage might happen and how the costs of normal spoilage get allocated. (4%)

4. ABC Company is interested in replacing a machine with a new one. The old machine has a salvage value of \$20,000 now and no salvage value 3 years later, if rebuilt. If the old machine is kept, it must be rebuilt one year after at a predicted cost of \$30,000.

The new machine costs \$120,000 and had a predicted salvage value of \$25,000 at the end of three years. If purchased, the new machine will allow cash savings of \$40,000 for the first year and \$20,000 for each year of its remaining life. The cash savings all occur at the end of the respective year.

## Required:

What is the net present value of purchasing the new machine if ABC Company has a required rate of return of 14%? (15%)

5. XYZ Company makes a special kind of television called HD. To produce HD, XYZ used \$10,000,000 of assets at the beginning of 2018 and \$14,000,000 of assets at the end of 2018. Other costs to produce HD are as follows:

Direct materials	\$6,000 per unit
Direct labor	\$100 per direct labor hour
Indirect manufacturing cost	\$200 per machine hour

The marketing costs for HD are \$800,000 in 2018. During 2018, XYZ produced and sold 1,000 units of HD using 8,000 direct labor hours and 6,000 machine hours. HD is sold for \$10,000 each.

## Required:

- (1). Assuming XYZ defines investment as average assets during the period, calculate the return on investment for HD. (10%)
- (2). Calculate the residual income for HD if XYZ has a required rate of return of 8%. (10%)

6. Taipei Company produces basketballs that it sells for \$40 each. At capacity, Taipei can produce 60,000 units a year. The costs of producing and selling 60,000 units are as follows:

	Unit cost	Total costs
Direct materials	\$15	\$900,000
Direct labor	\$4	\$240,000
Variable manufacturing overhead	\$3	\$180,000
Fixed manufacturing overhead	\$6	\$360,000
Variable marketing costs	\$4	\$240,000
Fixed marketing costs	\$3	\$180,000

## Required:

Suppose Taipei Company is currently producing and selling 50,000 basketballs. Tainan Company wants to place a one-time only special order for 8,000 basketballs at \$25 each. Taipei Company will not incur variable marketing costs for this special order. Should Taipei Company accept this order? Please show your calculations. (15%)

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