

東吳大學 115 學年度碩士班招生考試試題

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系 級	會計學系碩士班	考試 時間	100 分鐘
科 目	成本及管理會計學	本科 總分	100 分

※一律作答於答案卷上(題上作答不予計分)；並務必標明題號，依序作答。

一、Multiple Choice 10%

- Rally Synthesis Inc. manufactures and sells 100 bottles per day. Fixed costs are \$22,000 and the variable costs for manufacturing 100 bottles are \$30,000. Each bottle is sold for \$1,200. How would the daily profit be affected if the daily volume of sales drop by 10%?
 - profits are reduced by \$3,000
 - profits are reduced by \$9,000
 - profits are reduced by \$12,000
 - profits are reduced by \$59,000
- X-Industries manufactures 3-D printers. For each unit, \$3,100 of direct material is used and there is \$2,500 of direct manufacturing labor at \$25 per hour. Manufacturing overhead is applied at \$30 per direct manufacturing labor hour. Calculate the profit earned on 45 units if each unit sells for \$10,000.
 - \$104,250
 - \$81,750
 - \$63,000
 - \$3,000
- Harland Corporation currently produces cardboard boxes in an automated process. Expected production per month is 20,000 units, direct material costs are \$2.50 per unit, and manufacturing overhead costs are \$15,000 per month. Manufacturing overhead is all fixed costs. What are the flexible budgets of manufacturing cost for 14,000 and 20,000 units, respectively?
 - \$14,000; \$65,000
 - \$14,000; \$30,000
 - \$50,000; \$65,000
 - \$50,000; \$30,000
- Speedy Supplies sells a product at a price of \$150. Its variable manufactured cost is \$24 and the variable marketing cost per unit is \$17.50 with fixed cost per period of \$80,000. What would be the change in operating income under variable costing if sales increase from 10,000 to 10,100 units?
 - \$10,850
 - \$12,600
 - \$13,250
 - \$19,150
- To complete the first setup on a new machine took an employee 350 minutes. Using an 84% cumulative average-time learning curve indicates that the second setup on the new machine is expected to take:
 - 147 minutes
 - 238 minutes
 - 294 minutes
 - 322 minutes

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6. In 2025, Smart Office Systems Inc. (SOSI) used 25,840 pounds of plastic (direct materials) to produce 8000 units as opposed to 2026 when SOSI produced 8500 units using 27,840 pounds of plastic. The type of plastic SOSI uses cost \$5 per pound in 2025 and rose to \$5.25 per pound in 2026. In comparing results for these two years, what would be the cost effect of growth for the plastic material?
- \$8,075 (F)
 - \$8,479 (U)
 - \$8,075 (U)
 - \$10,000 (U)
7. Sales-mix variance = \$250,000 (U), sales-volume variance = \$510,000 (U), flexible-budget variance = \$200,000 (F), market-size variance = \$34,000 (U), calculate the sales-quantity variance.
- \$794,000 (U)
 - \$760,000 (U)
 - \$260,000 (U)
 - \$226,000 (U)
8. Emerald Corp currently uses a manufacturing facility costing \$410,000 per year; 93% of the facility's capacity is currently being used. A start-up business has proposed a plan that would utilize the other 7% of the facility and increase the overall costs of maintaining the space by 5%. If the stand-alone method were used, what amount of cost would be allocated to the start-up business?
- \$26,691
 - \$28,126
 - \$28,700
 - \$30,135
9. Lazy Guy Corporation manufactured 6,000 chairs during June. The following variable overhead data relates to June:
- | | |
|--|-----------|
| Budgeted variable overhead cost per unit | \$10.00 |
| Actual variable manufacturing overhead cost | \$52,800 |
| Flexible-budget amount for variable manufacturing overhead | \$46,900 |
| Variable manufacturing overhead efficiency variance | \$790 (U) |
- What is the variable overhead spending variance?
- \$5,110 favorable
 - \$5,110 unfavorable
 - \$5,900 favorable
 - \$5,900 unfavorable
10. The Berkel Corporation manufactures Widgets, Gizmos, and Turnbols from a joint process. June production is 7,000 Widgets, 10,500 Gizmos, and 12,500 Turnbols. Respective per unit selling prices at split-off are \$95, \$65, and \$30. Joint costs up to the split-off point are \$188,000. What amount of joint costs will be allocated to the Gizmos? (Do not round any intermediary calculations.)
- \$40,929
 - \$20,519
 - \$74,491
 - \$72,581

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二、 20%

Energy SPA, Inc. operates health spas in Taipei and Kaohsiung. The Kaohsiung spa was the company's first and opened in 2011. The Taipei spa opened in 2018. All spas are assumed to face similar risks. Income tax rate is 20%. Data for 2025 are shown below:

	Taipei	Kaohsiung	Total
Revenues	\$4,500,000	\$3,400,000	\$7,900,000
Variable costs	1,800,000	1,102,000	2,902,000
Fixed costs	<u>1,250,000</u>	<u>1,050,000</u>	<u>2,300,000</u>
Operating income	1,450,000	1,248,000	2,698,000
Interest costs on long-term debt at 6%	<u>252,000</u>	<u>228,000</u>	<u>480,000</u>
Income before taxes	1,198,000	1,020,000	2,218,000
Net income after 20% taxes	958,400	816,000	1,774,400
Net book value at 2025 year-end:			
Current assets	1,250,000	980,000	2,230,000
Long-term assets	<u>6,000,000</u>	<u>4,220,000</u>	<u>10,220,000</u>
Total assets	7,250,000	5,200,000	12,450,000
Current liabilities	400,000	350,000	750,000
Long-term debt	4,200,000	3,800,000	8,000,000
Stockholders' equity	<u>2,650,000</u>	<u>1,050,000</u>	<u>3,700,000</u>
Total liabilities and stockholders' equity	7,250,000	5,200,000	12,450,000
Market value of debt	4,200,000	3,800,000	8,000,000
Market value of equity	5,962,500	2,357,500	8,320,000
Cost of equity capital			15%
Required rate of return			12%
Accumulated depreciation on long-term assets	1,500,000	2,500,000	

Required:

1. Calculate RI and ROI for each of the spas based on operating income and using total assets as the measure of investment.
2. Calculate the WACC for Energy SPA.
3. Calculate EVA for each of the spas, using net book value of long-term assets. Calculate EVA again, using gross book value of long-term assets. Comment on the differences between the two methods.

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三、 22%

SunnyDay provides garden care and landscaping services to commercial clients. SunnyDay uses activity-based costing to bid on jobs. SunnyDay reports the following budgeted annual costs:

Wages and salaries	\$800,000
Depreciation	640,000
Supplies	420,000
Other overhead	<u>480,000</u>
Total overhead costs	\$2,340,000

George Wang, controller of SunnyDay, has established four activity-cost pools and the following budgeted activity for each cost pool:

Activity-Cost Pool	Activity Measure	Total Activity for the Year
Estimating jobs	Number of job estimates	230 estimates
Garden care	Number of direct labor-hours	7,730 direct labor-hours
Landscape design	Number of design hours	794 design hours
Other	Facility-sustaining costs that are not allocated to jobs	Not applicable

Wang estimates that SunnyDay's costs are distributed to the activity-cost pools as follows:

	Estimating Jobs	Garden Care	Landscape Design	Other	Total
Wages and salaries	5%	65%	20%	10%	100%
Depreciation	15%	60%	15%	10%	100%
Supplies	0%	90%	5%	5%	100%
Other overhead	10%	55%	25%	10%	100%

Mountain Park, a new development in a nearby community, has contacted SunnyDay to provide an estimate on landscape design and annual garden care. The job is estimated to require a single landscape design requiring 45 design hours in total and 460 direct labor-hours annually. SunnyDay has a policy of pricing estimates at 180% of cost.

Required:

1. Allocate SunnyDay's costs to the activity-cost pools and determine the activity rate for each pool.
2. Estimate total cost for the Mountain Park job. How much would SunnyDay bid to perform the job?
3. SunnyDay does 50 landscape designs for its customers each year. Estimate the total cost for the Mountain Park job if SunnyDay allocated costs of the Landscape Design activity based on the number of landscape designs rather than the number of landscape design-hours.
 - a. How much would SunnyDay bid to perform the job?
 - b. Which cost driver do you prefer for the Landscape Design activity? Why?
4. Mountain Park asks SunnyDay to give an estimate for providing its service for a 2-year period. What are the advantages and disadvantages for SunnyDay to provide a 2-year estimate?

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四、14%

Yummy is a food-processing company. Direct materials are added at the start of the production process. Conversion costs are added evenly during the process. Some units of the product are spoiled as a result of defects not detectable before inspection point. The inspection point is at the 80% stage of the completion. Spoiled units are disposed of at zero net disposal value. Yummy uses the weighted average method of process costing.

Summary data for July 2025 are as follows:

	Physical Units	Direct Materials	Conversion Costs
Work in process, beginning inventory	1,500	\$500,000	\$192,500
Degree of completion of beginning work in process		100%	50%
Started during July	4,800		
Good units completed and transferred out during July	4,200		
Work in process, ending inventory	1,100		
Degree of completion of ending work in process		100%	40%
Total costs added during July		1,516,000	1,167,500
Normal spoilage as a percentage of good units	15%		

Required:

- For each cost category, compute equivalent units.
- Calculate the cost per equivalent unit for each cost category.
- Assign costs to units completed and transferred out (including normal spoilage), to abnormal spoilage, and to units in ending work in process.

五、14%

GreenTec is considering the purchase of new equipment. This new equipment would cost \$400,000 to purchase and \$80,000 for installation. GreenTec estimates that this new equipment would yield incremental contribution margin of \$180,000 annually due to new client services but would require incremental cash maintenance costs of \$25,000 annually. GreenTec expects the life of this equipment to be 4 years and estimates a terminal disposal value of \$60,000.

GreenTec has a 20% income tax rate and depreciates assets on a straight-line basis. The required rate of return on investments is 12%.

Hint: The present values of \$1 are as follows:

Periods	1	2	3	4
12%	0.893	0.797	0.712	0.636

Required:

- What is the expected increase in annual net income from investing in the new equipment?
- Calculate the accrual accounting rate of return based on average investment.
- Calculate net present value. Is the new equipment worth investing in from an NPV standpoint?
- Suppose the tax authorities are willing to let GreenTec depreciate the new equipment down to zero over its useful life. If GreenTec plans to liquidate the equipment in 4 years, should it take this option? Quantify the impact of this choice on the NPV of the new equipment.

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六、 20%

The Leisure Corporation manufactures tables in two operations: machining and finishing. It provides the following information:

	Machining	Finishing
Annual capacity	120,000 units	100,000units
Annual production	100,000 units	100,000 units
Fixed operating cost (excluding direct materials)	\$1,200,000	\$500,000
Fixed operating costs per unit produced	\$12 per unit	\$5 per unit

Each table sells for \$100 and has direct material costs of \$45 and \$20 incurred at the start of the machining operation and finishing operation respectively. Leisure has no other variable costs. Leisure can sell whatever output it produces. The following requirements refer only to the preceding data. There is no connection between the requirements.

Required:

- The production manager of the Machining Department has submitted a proposal to do faster setups that would increase the annual capacity of the Machining Department by 4,000 units and would cost \$8,000 per year. Should Leisure implement the change? Show your calculations.
- Leisure is considering using some modern tools in the finishing operation that would increase annual finishing output by 2,000 units. The annual cost of these tools is \$38,000. Should Leisure acquire these tools? Show your calculations.
- The Lucy Company offers to do the finishing operation for 10,000 units at \$10 per unit, double the \$5 per unit that it costs Leisure to do the finishing operation. Should Leisure accept the Lucy's offer?
- The Hammer Corporation offers to do the machining operation for 8,000 units at \$4 per unit, one-third of the \$12 per units that it costs Leisure to do the machining operation. Should Leisure accept Hammer's offer? Show your calculations.
- Leisure produces 2,000 defective units at the machining operation. What is the cost to Leisure of the defective items produced? Explain your answer briefly.
- Leisure produces 1,800 defective units at the finishing operation. What is the cost to Leisure of the defective items produced? Explain your answer briefly.