[注意] 1.可不按題號順序作答，但須標明題號。
2.可用中文或英文作答。
3.計算題請列出必要之計算式，否則不予計分。

一、 Jhongli Products Inc. expects to maintain the same inventories at the end of 2015 as at the beginning of the year. The total of all production costs for the year is therefore assumed to be equal to the cost of goods sold. With this in mind, the various department heads were asked to submit estimates of the costs for their departments during 2015. A summary report of these estimates is as follows:

	Estimated Fixed Cost	Estimated Variable Cost (per unit sold)
Production costs:		
Direct materials	—	$137.70
Direct labor	—	116.40
Factory overhead	$232,000	27.20
Selling expenses:		
Sales salaries and commissions	356,225	9.15
Advertising	67,500	—
Travel	42,500	—
Miscellaneous selling expense	22,250	2.25
Administrative expenses:		
Office and officers' salaries	235,000	—
Supplies	15,525	6.30
Miscellaneous administrative expense	19,000	3.50
Total	$990,000	$302.50

It is expected that 5,000 units will be sold at a price of $550 a unit. Maximum sales within the relevant range are 10,000 units.

Required: **(24%)**

1. Calculate the estimated cost of goods sold and the estimated income from operations. (8%)
2. What is the expected contribution margin ratio? (4%)
3. Determine the break-even sales in units. (4%)
4. What is the expected margin of safety percentage? (4%)
5. Determine the operating leverage. (4%)

二、 Worley Company buys surgical supplies from a variety of manufacturers and then resells and delivers these supplies to hundreds of hospitals. Worley sets its prices for all hospitals by marking up its cost of goods sold to those hospitals by 5%. For example, if a hospital buys supplies from Worley that had cost Worley $100 to buy from manufacturers, Worley would charge the hospital $105 to purchase these supplies.

For years, Worley believed that the 5% markup covered its selling and administrative expenses and provided a reasonable profit. However, in the face of declining profits Worley decided to implement an activity-based costing system to help improve its understanding of customer profitability. The company broke its selling and administrative expenses into five activities as shown below:

Activity Cost Pool (Activity Measure)	Total Cost	Total Activity
Customer deliveries (Number of deliveries)	$ 500,000	5,000 deliveries
Manual order processing (Number of manual orders)	248,000	4,000 orders
Electronic order processing (Number of electronic orders)	200,000	12,500 orders
Line item picking (Number of line items picked)	450,000	450,000 line items
Other organization-sustaining costs (None)	602,000	
Total selling and administrative expenses	$2,000,000	

Worley gathered the data below for two of the many hospitals that it serves—University and Memorial (both hospitals purchased a total quantity of medical supplies that had cost Worley $30,000 to buy from its manufacturers):

(24%)

	Activity	
Activity Measure	University	Memorial
Number of deliveries	10	25
Number of manual orders	0	30
Number of electronic orders	15	0
Number of line items picked	120	250

Required:

1. Compute the total revenue that Worley would receive from University and Memorial. (6%)
2. Compute the activity rate for each activity cost pool. (4%)
3. Compute the total activity costs that would be assigned to University and Memorial. (6%)
4. Compute Worley's customer margin for University and Memorial. (*Hint:* Do not overlook the $30,000 cost of goods sold that Worley incurred serving each hospital.) (6%)
5. Describe the purchasing behaviors that are likely to characterize Worley's least profitable customers. (2%)

三、 Horizon Communications Inc. is considering allocating a limited amount of capital investment funds among four proposals. The amount of proposed investment, estimated income from operations, and net cash flow for each proposal are as follows:

參考用

	Investment	Year	Income from Operations	Net Cash Flow
Proposal A:	$680,000	1	$ 74,000	$210,000
		2	74,000	210,000
		3	74,000	210,000
		4	14,000	150,000
		5	14,000	150,000
			$250,000	$930,000
Proposal B:	$155,000	1	$ 29,000	$ 60,000
		2	64,000	95,000
		3	9,000	40,000
		4	(1,000)	30,000
		5	(11,000)	20,000
			$ 90,000	$245,000
Proposal C:	$281,250	1	$ 18,750	$ 75,000
		2	18,750	75,000
		3	18,750	75,000
		4	18,750	75,000
		5	(6,250)	50,000
			$ 68,750	$350,000
Proposal D:	$260,000	1	$ 38,000	$ 90,000
		2	38,000	90,000
		3	28,000	80,000
		4	28,000	80,000
		5	23,000	75,000
			$155,000	$415,000

The company's capital rationing policy requires a maximum cash payback period of three years. In addition, a minimum average rate of return of 12% is required on all projects. If the preceding standards are met, the net present value method and present value indexes are used to rank the remaining proposals.

Required: **(26%)**

1. Compute the cash payback period for each of the four proposals. (4%)
2. Giving effect to straight-line depreciation on the investments and assuming no estimated residual value, compute the average rate of return for each of the four proposals. Round to one decimal place. (4%)
3. Using the following format, summarize the results of your computations in parts (1) and (2). By placing a check mark in the appropriate column at the right, indicate which proposals should be accepted for further analysis and which should be rejected. (4%)

Proposal	Cash Payback Period	Average Rate of Return	Accept for Further Analysis	Reject
A				
B				
C				
D				

4. For the proposals accepted for further analysis in part (3), compute the net present value. Use a rate of 10% and the present value of $1 table appearing in this chapter. Round to the nearest dollar. (4%)
5. Compute the present value index for each of the proposals in part (4). Round to two decimal places. (4%)
6. Rank the proposals from most attractive to least attractive, based on the present values of net cash flows computed in part (4). (2%)
7. Rank the proposals from most attractive to least attractive, based on the present value indexes computed in part (5). Round to two decimal places. (2%)
8. Based upon the analyses, comment on the relative attractiveness of the proposals ranked in parts (6) and (7). (2%)

Present Value of $1 at Compound Interest Due in *n* Periods: $p_{\overline{n}|i} = \frac{1}{(1+i)^n}$

n / i	9%	10%	11%	12%	13%	14%
1	0.91743	0.90909	0.90090	0.89286	0.88496	0.87719
2	0.84168	0.82645	0.81162	0.79719	0.78315	0.76947
3	0.77218	0.75132	0.73119	0.71178	0.69305	0.67497
4	0.70842	0.68301	0.65873	0.63552	0.61332	0.59208
5	0.64993	0.62092	0.59345	0.56743	0.54276	0.51937

四、昆杰公司採用標準成本會計制度，其 2014 年 12 月份 A 製造部之生產資料如下：

1. 每單位產品之標準工時為 2 小時，每小時標準工資$10。
2. 約當產量為 4700 單位，直接人工實際工時 9,450 小時，每小時實際工資率$11。
3. 製造費用按直接人工小時分攤，製造費用分攤率係以正常產能 (10,000 直接人工小時) 做為基準產能計算，A 製造部之製造費用變動標準如下：

A 製造部之製造費用變動標準表

直接人工小時.....	9,000	9,500	10,000
工作效率百分比.....	90%	95%	100%
間接人工.....	$35,500	$36,650	$37,800
間接材料.....	24,400	25,200	26,000
維護費.....	15,000	15,500	16,000
折舊.....	4,200	4,200	4,200
其他.....	14,900	15,450	16,000
合計.....	$94,000	$97,000	$100,000

4. 實際發生之製造費用總額為$98,900，其中實際固定製造費用為$41,000，實際變動製造費用為$57,900

試求： **(26%)**

1. 預計標準的製造費用分攤率，並劃分為預計標準的變動與固定製造費用分攤率。(6%)
2. 製造費用之間接材料與維護費這兩項半變動成本 (y=a+bx) 中的固定成本(a)與單位變動成本(b)。 (8%)
3. 製造費用的總差異為何? 並將製造費用的總差異分析為： (12%)
   (1) 可控制差異(Controllable variance)與能量差異(Volume variance)
   (2) 用款差異(Spending variance)、效率差異(Efficiency variance)、以及閒置產能差異(Idle capacity variance)

注意:背面有試題