

Problem 1 (20%)

Vince Corporation manufactures component No. 86, which is used in the production of smartwatches. Vince is preparing for its 2024 pricing plan. Vince has traditionally used a cost-plus pricing, making a 60% markup on total variable cost to arrive at a reasonable selling price. If Vince continues this pricing policy, it expects sales volume to be 200,000 in 2024. Beginning inventory is the same as ending inventory.

Vince's 2024 cost-plus pricing is based on the following cost behavior assumptions within the company's relevant range. Vince has three cost items: A, which is variable; B, which is fixed; and C, which is semi-variable. The company uses the high-low method and extracted the following cost behavior findings from its accounting records:

- At 180,000 units of activity, Cost A totaled \$5,220,000.
- At 140,000 units, the low point during the period, Cost C totaled \$2,996,000; at 200,000 units, the high point, Cost C's fixed portion amounted to \$3.5 per unit.
- At 160,000 units of activity, the sum of Costs A, B, and C amounted to \$8,162,000.

The company, though, has noticed a sizable drop in sales volume during 2023, which it attributes to new entrants in the marketplace. This causes Vince to consider a change in its pricing policy to follow target costing. Vince conducted a market research and found the current prevailing market price to be \$66.

Required:

- (1) If Vince continues its cost-plus pricing, determine the company's 2024 safety margin in dollars.
- (2) If management desires to meet the prevailing market price and maintain the current rate of profit on sales, should the company increase or decrease its total unit costs? By how much?

Problem 2 (20%)

The AsiaSteel Corporation is an automotive supplier that uses automatic turning machines to manufacture precision parts from steel bars. AsiaSteel is making two independent decisions: 1. Adoption of JIT inventory system. 2. Outsourcing human recourse (HR). AsiaSteel's inventory of raw steel averages \$400,000. Keith Lin, president of AsiaSteel, and Shaun Wu, AsiaSteel's controller, are concerned about the costs of carrying inventory. The steel supplier is willing to supply steel in smaller lots at no additional charge. Shaun identifies the following effects of adopting a JIT inventory program to virtually eliminate steel inventory:

- Without scheduling any overtime, lost sales due to stockouts would increase by 25,000 units per year. However, by incurring overtime premiums of \$30,000 per year, the increase in lost sales could be reduced to 15,000 units per year. This would be the maximum amount of overtime that would be feasible for AsiaSteel.
- Two warehouses currently used for steel bar storage would no longer be needed. AsiaSteel rents one warehouse from another company under a cancelable leasing arrangement at an annual cost of \$60,000. The other warehouse is owned by AsiaSteel and contains 16,000 square feet. Three-fourths of the space in the owned warehouse could be rented for \$3.00 per square foot per year. Insurance and property tax costs totaling \$10,000 per year would be eliminated.

AsiaSteel's required rate of return on investment is 15% per year. AsiaSteel's budgeted income statement for the year ending December 31, 2024, (in thousands) is:

見背面

Revenues (1,000,000 units)		\$15,000
Cost of goods sold		
Variable costs	\$6,380	
Fixed costs	<u>2,820</u>	
Total costs of goods sold		<u>9,200</u>
Gross margin		\$ 5,800
Marketing and distribution costs		
Variable costs	\$2,010	
Fixed costs	<u>750</u>	
Total marketing and distribution costs		<u>2,760</u>
Operating income		<u><u>\$3,040</u></u>

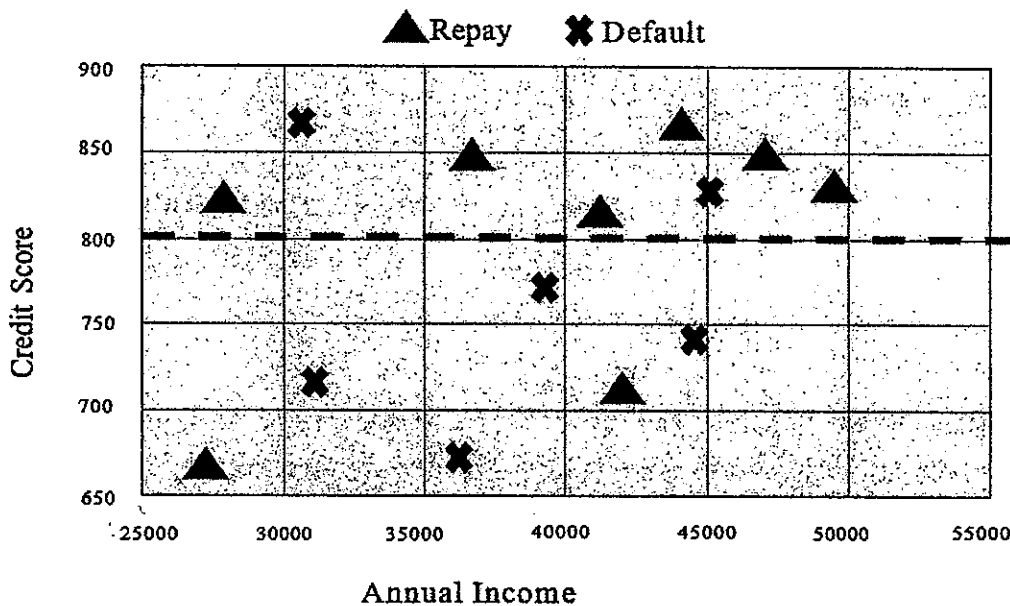
Required:

- (1) Calculate the estimated dollar savings (loss) for the AsiaSteel Corporation that would result in 2024 from the adoption of JIT purchasing.
- (2) AsiaSteel is considering whether to outsource its HR activities. Salaried professionals who earn \$390,000 would be terminated; in contrast, administrative assistants who earn \$120,000 would be transferred elsewhere in the organization. Miscellaneous departmental overhead (e.g., supplies, copy charges, overnight delivery) is expected to decrease by \$30,000, and \$25,000 of corporate overhead, previously allocated to HR, would be picked up by other departments. If AsiaSteel can secure needed HR services locally for \$410,000, how much would the company benefit by outsourcing?

Problem 3 (10%)

Kevin Chen is the management accountant at NTU Bank. He is working with the data science team to use a decision tree for predicting whether a loan will repay or default. Kevin knows that defaulting loans have significantly hurt NTU's profitability.

The team selects a random sample of fourteen loans (eight loans that repaid and six loans that defaulted) from NTU's internal loan database and begins the analysis. The team finds two variables highly related to a default payment: *credit score* and *annual income*. The team plots the sample in the below diagram and forms the first node of the decision tree using the first cut: *Credit Score*=800.



Required: Calculate the information gain from the first cut.

Problem 4 (20%)

The Gilbert Company manufactures furniture in two departments: molding and finishing. The company uses the first-in, first-out (FIFO) method of process costing. August data for the finishing department are as follows:

Units of beginning work-in-process inventory	25,000
Percentage completion of beginning work-in-process units	25%
Units started	175,000
Units completed	125,000
Units in ending inventory	50,000
Percentage completion of ending work-in-process units	95%
Spoiled units	25,000

Total costs added during current period:

Direct materials	\$1,638,000
Direct manufacturing labor	\$1,589,000
Manufacturing overhead	\$1,540,000
Work in process, beginning:	
Transferred-in costs	\$207,250
Conversion costs	\$105,000
Cost of units transferred in during current period	\$1,618,750

Conversion costs are added evenly during the process. Direct material costs are added when production is 90% complete. The inspection point is at the 80% stage of production. Normal spoilage is 10% of all good units that pass inspection. Spoiled units are disposed of at zero net disposal value.

Required:

Determine total costs assigned to (1) normal spoilage, (2) abnormal spoilage, (3) units completed and transferred out, and (4) ending work-in process.

Problem 5 (15%)

The Hansen Company operates a simple chemical process to convert a single material into three separate items, referred to here as A, B, and C. All three end products are separated simultaneously at a single splitoff point. Products A and B are ready for sale immediately upon splitoff without further processing or any other additional costs. Product C, however, is processed further before being sold because there is no available market price for C at the splitoff point.

During 2020, the selling prices of the items and the total amounts sold were as follows:

- A—120 tons sold for \$750 per ton
- B—340 tons sold for \$500 per ton
- C—475 tons sold for \$350 per ton

見背面

The total joint manufacturing costs for the year were \$200,000. Hansen spent an additional \$100,000 to finish product C. There were no beginning inventories of A, B, or C. At the end of the year, the following ending inventories of completed units were on hand: A, 180 tons; B, 60 tons; C, 25 tons. There was no beginning or ending work in process.

Required:

- (1) Allocate the joint costs to Products A, B, and C using the following:
 - a. Net realizable value (NRV) method
 - b. Constant gross-margin percentage NRV method
- (2) For Product C, compute its gross margin for the year under:
 - a. NRV method
 - b. Constant gross-margin percentage NRV method
- (3) Assume that the company could produce and sell Product C in the same quantity at the splitoff point without additional costs. Under the sales value at splitoff method, what price should the company set to earn a gross margin percentage of 60 percent for Product C? Show your calculation.

Problem 6 (15%)

The Finn Company produces cotton/polyester blend T-shirts to supply a custom T-shirt customer. The number of shirts budgeted for the period was 700,000. The company experienced a computer failure and some of the data were lost and could not be recovered. The Finn Company recognize material price variance at the moment of purchase. Data the company were able to recover are shown below:

Direct materials used	800,000 sq. yds.
Direct materials purchased	820,000 sq. yds.
Direct materials price variance	\$29,520 F
Direct materials efficiency variance	\$38,400 F
Direct manufacturing labor price variance	\$31,800 U
Standard price of direct materials	\$2.4 per sq. yd.
Standard quantity of direct materials per T-shirt	1.2 sq. yds.
Standard hour of direct manufacturing labor per T-shirt	0.8 hr
Actual direct manufacturing labor cost	\$9,571,800
Actual direct manufacturing labor rate	\$ 18.06/hr

Required: Calculate the following

- (1) Actual price per square yard of direct materials
- (2) Actual quantity of shirts produced
- (3) Standard direct manufacturing labor rate
- (4) Direct manufacturing labor efficiency variance
- (5) Sales-volume variance for direct manufacturing labor

試題隨卷繳回