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Students' Department

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AMERICAN INSTITUTE EXAMINATIONS

(Note.—The fact that these answers appear in The Journal of Accountancy should not lead the reader to assume that they are the official answers of the board of examiners. They represent merely the personal opinions of the editors of the *Students' Department.*)

Examination in Accounting Theory and Practice—Part II

November 19, 1926, 1 p. m. to 6 p. m.

The candidate must answer all the following questions:

No. 1 (27 points):

During the month of December, 1925, the Non-such Oil Company prepared a budget covering the six months from January 1 to June 30, 1926, the main purpose being an endeavor to forecast the company's *cash position* as of June 30, 1926.

Below are given the figures used in compiling the budget and the actual figures for the six months.

From these and the data following, you are required to prepare a statement for presentation to the board of directors, showing a comparison between estimated and actual results and, in addition thereto, a brief but comprehensive report, to be read in conjunction therewith, explaining the differences and their effect on the company's cash position as shown by the statement.

The figures given cover all sources of revenue and expense.

Non-such Oil Company

	Estimated	Actual
Sales of crude oil	$4,000,000	$3,610,000
Sales of refined products:		
Gasoline	4,400,000	4,200,000
Kerosene	420,000	406,000
Other	1,555,200	1,580,400
Purchases of refined products:		
Gasoline	315,000	380,000
Other		102,000
Operating expenses:		
Direct charges	1,620,000	1,560,000
Materials and supplies from warehouses	180,000	170,000
Marketing expenses	2,290,400	2,222,240
General and administrative expenses	900,000	800,000
Capital additions:		
Direct charges	2,000,000	1,800,000
Materials and supplies from warehouses	1,500,000	1,500,000
Interest on bonds	60,000	60,000
Bond sinking fund	50,000	50,000
Preferred stock dividend	350,000	350,000
Preferred stock sinking fund	200,000	200,000
Accounts receivable:		
January 1st	900,000	900,000
June 30th	1,200,000	1,100,000

Accounts payable:		
January 1st	$700,000	$700,000
June 30th	800,000	750,000
Inventories of materials and supplies:		
For operating purposes, January 1st	50,000	50,000
" " " June 30th	50,000	50,000
For new construction, January 1st	500,000	500,000
" " " June 30th	500,000	400,000

NOTES:

(1) There are no marketing expenses on crude oil sales.

(2) Purchases of materials and supplies are paid for within the month received.

Statement of quantities

	Purchases	Production	Sales	Refinery consumption
Crude oil (barrels):				
Estimated		4,000,000	2,000,000	2,000,000
Actual		3,800,000	1,900,000	1,900,000
Refined products (gallons):				
Gasoline:				
Estimated	3,000,000	50,400,000	40,000,000	
Actual	4,000,000	47,880,000	42,000,000	
Kerosene:				
Estimated		8,400,000	6,000,000	
Actual		7,980,000	5,800,000	
Other:				
Estimated		21,000,000	19,440,000	
Actual	1,200,000	19,950,000	17,560,000	
Refinery loss:				
Estimated		4,200,000		
Actual		3,990,000		

NOTE: 1 barrel equals 42 gallons.

Solution:

Board of Directors,
Non-such Oil Company.

GENTLEMEN:

During the six months period ended June 30, 1926, the company's cash increased $552,160. This amount compares with an estimated increase, indicated by the cash budget prepared in December, 1925, of $709,800, the actual increase being, therefore, $157,640 less than estimated.

The difference between the actual and estimated increase in cash was the combined result of the following:

Excess of estimated over actual receipts:		
Estimated	$10,075,200.00	
Actual	9,596,400.00	$478,800.00
Excess of estimated over actual disbursements:		
Estimated	$9,365,400.00	
Actual	9,044,240.00	321,160.00
Difference, being excess of estimated increase over actual increase in cash		$157,640.00

The attached statement, exhibit "A", shows a comparison of the actual and estimated amounts of the individual items of receipts and disbursements.

Exhibit "A"

NON-SUCH OIL COMPANY

Comparison of actual and estimated cash receipts and disbursements for the six months ended June 30, 1926

	Actual			Estimated			Resulting increase or decrease (*) in actual compared with estimated cash		
	Quantity	Price	Amount	Quantity	Price	Amount	Due to difference in quantity	Due to difference in price	Amount
Receipts:									
From sales of products:									
Accounts receivable, January 1, 1926			$900,000.00			$900,000.00	....	....	....
Sales, six months ended June 30, 1926:									
Crude oil	1,900,000 bbl.	$1.90	$3,610,000.00	2,000,000 bbl.	$2.00	$4,000,000.00	$190,000.00*	$200,000.00*	$390,000.00*
Gasoline	42,000,000 gal.	.10	4,200,000.00	40,000,000 gal.	.11	4,400,000.00	200,000.00	400,000.00*	200,000.00*
Kerosene	5,800,000 gal.	.07	406,000.00	6,000,000 gal.	.07	420,000.00	14,000.00*	....	14,000.00*
Other refined products	17,560,000 gal.	.09	1,580,400.00	19,440,000 gal.	.08	1,555,200.00	169,200.00*	194,400.00	25,200.00
Total			$9,796,400.00			$10,375,200.00	$173,200.00*	$405,600.00*	$578,800.00*
Together			$10,696,400.00			$11,275,200.00			$578,800.00*
Accounts receivable, June 30, 1926			1,100,000.00			1,200,000.00			100,000.00
Receipts from customers			$9,596,400.00			$10,075,200.00			$478,800.00*
Disbursements:									
For merchandise purchases, expenses, capital additions, fixed charges and dividends:									
Accounts payable, January 1, 1926			$700,000.00			$700,000.00	....	....	....
Purchases:									
Gasoline	4,000,000 gal.	$.095	$380,000.00	3,000,000 gal.	$.105	$315,000.00	$95,000.00*	$30,000.00	$65,000.00*
Other refined products	1,200,000 gal.	.085	102,000.00			....	102,000.00*	....	102,000.00*
Total			$482,000.00			$315,000.00	$197,000.00*	$30,000.00	$167,000.00*

Expenses:			
Operating expenses, direct charges	$1,560,000.00	$1,620,000.00	$60,000.00
Materials and supplies	170,000.00	180,000.00	10,000.00
Marketing expenses	2,222,240.00	2,290,400.00	68,160.00
General and administrative expenses	800,000.00	900,000.00	100,000.00
Total	$4,752,240.00	$4,990,400.00	$238,160.00
Capital additions:			
Direct charges	$1,800,000.00	$2,000,000.00	$200,000.00
Materials and supplies	1,400,000.00	1,500,000.00	100,000.00
Total	$3,200,000.00	$3,500,000.00	$300,000.00
Fixed charges and dividends:			
Interest on bonds	$60,000.00	$60,000.00	$........
Bond sinking fund	50,000.00	50,000.00	....
Preferred stock sinking fund	200,000.00	200,000.00	....
Preferred stock dividends	350,000.00	350,000.00	....
Total	$660,000.00	$660,000.00	$........
Together	$9,794,240.00	$10,165,400.00	$371,160.00
Accounts payable, June 30, 1926	750,000.00	800,000.00	50,000.00*
Disbursed	$9,044,240.00	$9,365,400.00	$321,160.00
Excess of receipts over disbursements	$552,160.00	$709,800.00	$157,640.00*

RECEIPTS

By reference to exhibit "A" it will be noted that actual sales for the period were $578,800 less than the estimated amount shown by the budget. This difference was due, chiefly, to the fact that, in the net, prices obtained were lower than had been estimated, but partly to the fact that net quantities sold were smaller than had been estimated, as shown by the following summary:

Difference due to changes in price:

Product	Estimated quantity	Estimated price	Actual price	Increase or decrease (*) in actual compared with estimated sales
Crude oil......	2,000,000 bbl.	$2.00	$1.90	$200,000*
Gasoline.......	40,000,000 gal.	.11	.10	400,000*
Kerosene.......	6,000,000 gal.	.07	.07	....
Other..........	19,440,000 gal.	.08	.09	194,400
Total..........				$405,600*

Difference due to changes in quantity:

Product	Estimated quantity	Actual quantity	Actual price	
Crude oil......	2,000,000 bbl.	1,900,000 bbl.	$1.90	$190,000*
Gasoline.......	40,000,000 gal.	42,000,000 gal.	.10	200,000
Kerosene.......	6,000,000 gal.	5,800,000 gal.	.07	14,000*
Other..........	19,440,000 gal.	17,560,000 gal.	.09	169,200*
Total..........				$173,200*
Total difference				$578,800*

While the sales for the period were $578,800 less than estimated, the actual decrease in the amount of cash received from customers compared with the amount estimated was only $478,800. This was due to the fact that the aggregate amount due from customers at June 30, 1926, was $100,000 less than estimated, as follows:

Accounts receivable, June 30, 1926:	
Estimated..........	$1,200,000
Actual..........	1,100,000
Difference..........	$100,000

This difference in the aggregate amount due from customers at June 30, 1926, was due in part to decreased sales and in part to greater promptness in payments made by customers as shown by the following tabulation:

	Actual	Estimated
Total amount collectible:		
Balances due, January 1, 1926..........	$900,000	$900,000
Sales for period..........	9,796,400	10,375,200
Together..........	$10,696,400	$11,275,200

Collections	$9,596,400	$10,075,200
Percentage of collections to total amount collectible	89.72%	89.36%

The difference between the actual and the estimated amounts of accounts receivable is therefore accounted for as follows:

Improved collections:	
.36% of $11,275,200	$40,478
Decreased sales:	
10.28% (100%−89.72%) of $578,800	59,522
Together	$100,000

DISBURSEMENTS

The decrease in cash disbursements of $321,160 compared with the estimated amount thereof, is accounted for as follows:

Decrease in expenses	$238,160
Decrease in capital expenditures	300,000
Together	$538,160
Increase in purchases	$167,000
Net decrease in expenditures	$371,160
Decrease in accounts payable	50,000
Net decrease in cash disbursements	$321,160

The increase in purchases of $167,000 as shown by exhibit "A" was due to the purchase of "other" refined products in the amount of $102,000 which had not been included in the estimated purchases, and a purchase of 1,000,000 gallons of gasoline more than estimated. In the case of gasoline, the increased quantity purchased, entailing an expenditure of $95,000, was partly offset by a reduction of $30,000 in the actual cost compared with the estimated cost due to the fact that the estimated requirements of 3,000,000 gallons were obtained at a price of $.01 a gallon less than estimated.

Marketing expenses on refined products sold were one-tenth of a cent a gallon less than estimated. This accounted for a decrease of $65,440 in total marketing expenses, the balance of the decrease, $2,720 being due to a decrease in sales of 80,000 gallons, a relatively small amount.

(NOTE.—The reduction in other expenses can not be measured in units, inasmuch as the portions of operating expenses and general and administrative expenses applicable to the production of crude oil and of refined products respectively are not stated.)

The decrease of $300,000 in disbursements due to capital additions was due to a decrease in direct charges of $200,000 and a decrease in disbursements for materials and supplies of $100,000 as a result of drawing that amount from warehouses without replacement of warehouse stocks.

The decrease of $50,000 in accounts payable as compared with the estimated amount thereof was due partly to the net decrease in expenditures for purchases, expenses and capital additions and partly to a larger percentage of payments on outstanding accounts. This is evidenced by the following tabulation:

	Actual	Estimated
Total amount payable:		
Accounts payable, January 1, 1926	$700,000	$700,000
Expenditures for purchases, expenses, and capital additions	8,434,240	8,805,400
Together	$9,134,240	$9,505,400
Payments on outstanding accounts	$8,384,240	$8,705,400
Percentage of payments to total amount payable	91.79%	91.58%

The difference between the actual and estimated amount of accounts payable at June 30, 1926, is therefore accounted for as follows:

Decreased expenditures:	
8.21% (100%−91.79%) of $371,160	$30,476
Larger percentage of payments on account, .21% of $9,505,400	19,524
Together	$50,000

With relation to the analysis of the change in the company's cash position, it should be noted that the actual production, during the period, of crude oil and refined products was less than the estimated production. In the case of refined products the decrease in production was partly offset by increased purchases.

Sales of refined products were only slightly less (in quantity) than estimated. This was due to the fact that decreased sales of "other" products and kerosene practically offset increased sales of gasoline.

Inventories of gasoline and kerosene were less than estimated as a result of decreased production not offset by either increased purchases or decreased sales. This was partly offset by an increase in the inventory of "other" refined products, due principally to decreased sales.

Details of production, purchases and sales for the period are shown in detail in exhibit "B." A brief summary of the differences between actual and estimated quantities follows:

Increase or decrease (*) of actual compared with estimated quantities of production, purchases and sales

	Production	Purchases	Total	Sales	Inventory
Gasoline (gal.)	2,520,000*	1,000,000	1,520,000*	2,000,000	3,520,000*
Kerosene (gal.)	420,000*	....	420,000*	200,000*	220,000*
Other (gal.)	1,050,000*	1,200,000	150,000	1,880,000*	2,030,000
Total refined products (gal.)	3,990,000*	2,200,000	1,790,000*	80,000*	1,710,000*

	Production	Refinery consumption	Sales	Inventory
Crude oil (bbl.)	200,000*	100,000*	100,000*	....

Respectfully, ____________________

Exhibit "B"

NON-SUCH OIL COMPANY

Comparison of actual and estimated production, purchases and sales for the six months ended June 30, 1926

	Actual		Estimated		Actual compared with estimated	
	Barrels	Gallons	Barrels	Gallons	Increase	Decrease
Crude oil production	3,800,000	159,600,000	4,000,000	168,000,000		200,000 bbl.
Accounted for as follows:						
Refinery consumption:						
Refined products:						
Gasoline		47,880,000		50,400,000		
Kerosene		7,980,000		8,400,000		
Other		19,950,000		21,000,000		
Total		75,810,000		79,800,000		
Refinery loss		3,990,000		4,200,000		
Total	1,900,000	79,800,000	2,000,000	84,000,000		100,000 bbl.
Sales of crude oil	1,900,000	79,800,000	2,000,000	84,000,000		100,000 bbl.
Total	3,800,000	159,600,000	4,000,000	168,000,000		200,000 bbl.
Gasoline:						
Produced		47,880,000		50,400,000		2,520,000 gal.
Purchased		4,000,000		3,000,000	1,000,000 gal.	
Total		51,880,000		53,400,000		1,520,000 gal.
Sales		42,000,000		40,000,000	2,000,000 gal.	
Inventory (and / or losses*)		9,880,000		13,400,000		3,520,000 gal.

NOTE. (*) Losses from evaporation, leakage, etc., are unknown; hence actual inventories may be less than the stated amount.

Exhibit "B"

NON-SUCH OIL COMPANY

Comparison of actual and estimated production, purchases and sales for the six months ended June 30, 1926—(*continued*)

	Actual Barrels	Actual Gallons	Estimated Barrels	Estimated Gallons	Actual compared with estimated Increase	Actual compared with estimated Decrease
Kerosene:						
Produced		7,980,000		8,400,000		420,000 gal.
Purchased						
Total		7,980,000		8,400,000		420,000 gal.
Sales		5,800,000		6,000,000		200,000 gal.
Inventory (and / or losses*)		2,180,000		2,400,000		220,000 gal.
Other:						
Produced		19,950,000		21,000,000		1,050,000 gal.
Purchased		1,200,000			1,200,000 gal.	
Total		21,150,000		21,000,000	150,000 gal.	
Sales		17,560,000		19,440,000		1,880,000 gal.
Inventory (and / or losses*)		3,590,000		1,560,000	2,030,000 gal.	
All refined products:						
Produced		75,810,000		79,800,000		3,990,000 gal.
Purchased		5,200,000		3,000,000	2,200,000 gal.	
Total		81,010,000		82,800,000		1,790,000 gal.
Sales		65,360,000		65,440,000		80,000 gal.
Inventory (and / or losses*)		15,650,000		17,360,000		1,710,000 gal.

NOTE. (*) Losses from evaporation, leakage, etc., are unknown; hence actual inventories may be less than the stated amount.

No. 2 (30 points):

The assets and liabilities of four companies are given herewith:

(A) Holding company.

(B) Manufacturing subsidiary of which A owns 80% of the stock, the rest being owned by outside interests.

(C) Company of which 95% of the stock is owned by B, the rest by outsiders.

(D) Selling company, 92% of the stock being owned by A and 8% by outsiders.

The building occupied by D was purchased from A for $1,550,000, although A paid only $1,000,000 for it. D has provided depreciation reserve on the $1,550,000 at the rate of 4% per annum for 5 years.

Prepare a consolidated balance-sheet eliminating the excess valuation of the buildings due to the inter-company profit taken by A in selling a building to D at a profit of $550,000; and show the liability to the minority stockholders of each company and, by schedule, the minority interests and consolidated surplus.

Arrange the balance-sheet, as to sequence and grouping of items, as you think best.

Assets	A	B	C	D
Land		$160,000	$130,000	$300,000
Buildings		940,000	536,000	1,550,000
Equipment		135,000		120,000
Machinery		731,000		
Patents	$600,000			
Investments at par in stock of subsidiaries	1,476,000	570,000		
Owing from other companies included in this consolidation	2,853,000	116,000		
Inventories:				
Raw material		320,500	136,000	
Finished goods		142,200	128,000	1,215,000
In process		167,313		
Accounts receivable		496,300		1,885,000
Deferred charges		13,200		
Cash	385,100	142,750	1,730	213,000
Marketable securities	115,000		500,000	
	$5,429,100	$3,934,263	$1,431,730	$5,283,000
Liabilities				
Capital stock	$2,000,000	$1,500,000	$600,000	$300,000
Surplus	2,210,800	212,963	557,730	634,000
Owing to companies included in this consolidation		1,720,000	116,000	1,133,000
Bonded debt				1,250,000
Notes payable	1,200,000		45,000	1,286,000
Accounts payable	18,300	113,400		322,000
Reserves:				
Depreciation, machinery and equipment		292,400		48,000
Depreciation, buildings		95,500	113,000	310,000
	$5,429,100	$3,934,263	$1,431,730	$5,283,000

Solution:

In working any consolidated balance-sheet problem it is necessary to know whether the holding company has continued to carry its subsidiary investments at cost or whether it has taken up its proportion of subsidiary profits by charge to the investment accounts, and has credited these accounts with its share of subsidiary losses and with dividends received. If the investment accounts are carried at cost, eliminations should be made on the basis of the book value, including capital stock and surplus, at the date of the holding company's acquisition of the stock. If profits, losses and dividends have been taken up in the manner above described, eliminations will be made on the basis of the subsidiary book value at the date of the consolidated balance-sheet.

The problem does not definitely state which method has been followed by the holding company, but it does state that the investments are carried at par. It is assumed, therefore (and this assumption appears to be clearly warranted), that the par value of the stock also represents the cost. This being the case, eliminations will be made on the basis of book value at the date of acquisition. However, the problem does not state the date of acquisition of any of the inter-company holdings, nor does it state the surplus of the respective subsidiaries at the dates of such acquisitions. Some assumption in regard to this matter is, therefore, essential, and it is assumed for purposes of this solution that the several acquisitions of subsidiary stocks were made at the dates of organization of the respective subsidiaries, and that, therefore, no subsidiary surplus or deficit accounts existed at the acquisition dates.

On the basis of the foregoing assumptions, it is necessary to eliminate only the par value of the subsidiary stocks since the par value also represented the book value at the date of acquisition.

However, a complication arises in determining the minority interests in the several companies because of the fact that company "B" owns 95 per cent. of the stock of company "C." Company "B" has not taken up its earnings on its holdings in company "C's" stock, and company "B's" surplus, therefore, includes only its own earnings. However, the minority interest in company "B" must be stated in the consolidated balance-sheet as the total of the minority's interest in company "B's" direct earnings and in company "B's" indirect earnings from holdings of company "C's" stock. The following supplementary working papers show the apportionment of the surplus of the several companies as between the respective minority interests and the holding company and fulfill the requirements of the problem to "disclose the liability to the minority stockholders, and, by schedule, the makeup of the minority interests and the consolidated surplus."

Computation of minority interest and consolidated surplus

	Company "A"	Company "B" Total	Company "B" Minority	Company "C" Total	Company "C" Minority	Company "D" Total	Company "D" Minority
Surplus per books	$2,210,800.00	$212,963.00	$	$557,730.00	$	$634,000.00	$
Apportionment of company D's surplus:							
8% to minority of Company "D"							50,720.00
92% to minority Company "A"	583,280.00						
Apportionment of Company C's surplus:							
5% to minority of Company "C"					27,886.50		
95% to Company "B" = $529,843.50							
Apportionment of "B's" 95%:							
Minority of Company "B"—20% of $529,843.50			105,968.70				
Company "A"—80% of $529,843.50	423,874.80						
Apportionment of Company "B's" surplus:							
20% to minority			42,592.60				
80% to Company "A"	170,370.40						
Minority interests in surplus			$148,561.30		$27,886.50		$50,720.00
Minority interests in capital stock:							
Company "D"—8% of $300,000.00							24,000.00
Company "C"—5% of $600,000.00					30,000.00		
Company "B"—20% of $1,500,000.00			300,000.00				
Total	$3,388,325.20		$448,561.30		$57,886.50		$74,720.00
Deduct—Reserve for unrealized profit on sale of building—see comments hereinafter	404,800.00						
Remainder, consolidated surplus	$2,983,525.20						

Following are the consolidated working papers:

COMPANY "A" AND SUBSIDIARIES

Consolidated balance-sheet—Working papers (Date)

Assets	"A"	"B"	"C"	"D"	Inter-company eliminations	Consolidated balance-sheet
Land	$	$160,000.00	$130,000.00	$300,000.00	$	$590,000.00
Buildings		940,000.00	536,000.00	1,550,000.00		3,026,000.00
Equipment		135,000.00		120,000.00		255,000.00
Machinery		731,000.00				731,000.00
Patents	600,000.00					600,000.00
Investments at par in stock of subsidiaries:						
Company "B"	1,200,000.00				1,200,000.00 (A)	
Company "D"	276,000.00				276,000.00 (B)	
Company "C"		570,000.00			570,000.00 (C)	
Owing from other companies included in the consolidation	2,853,000.00	116,000.00			2,969,000.00 (D)	
Inventories:						
Raw materials		320,500.00	136,000.00			456,500.00
Finished goods		142,200.00	128,000.00	1,215,000.00		1,485,200.00
In process		167,313.00				167,313.00
Accounts receivable		496,300.00		1,885,000.00		2,381,300.00
Deferred charges		13,200.00				13,200.00
Cash	385,100.00	142,750.00	1,730.00	213,000.00		742,580.00
Marketable securities	115,000.00		500,000.00			615,000.00
Total	$5,429,100.00	$3,934,263.00	$1,431,730.00	$5,283,000.00	$5,015,000.00	$11,063,093.00

Liabilities						
Capital stock:						
Company "A"	$2,000,000.00	$	$	$	$	$2,000,000.00
Company "B"		1,500,000.00			1,200,000.00 (A)	300,000.00 M
Company "C"			600,000.00		570,000.00 (C)	30,000.00 M
Company "D"				300,000.00	276,000.00 (B)	24,000.00 M
Surplus—See supporting schedule:						
Company "A"	2,210,800.00					
Reserve for profit on sale of building						404,800.00 R
Remainder						1,806,000.00 S
Company "B"		212,963.00				
Minority—20%						42,592.60 M in B
Company "A"—80%						170,370.40 S
Company "C"			557,730.00			
Minority of Company "C"—5%						27,886.50 M in C
Minority of Company "B"—20% of 95%						105,968.70 M in B
Company "A"—80% of 95%						423,874.80 S
Company "D"				634,000.00		
Minority—8%						50,720.00 M in D
Company "A"—92%						583,280.00 S
Owing to companies in the consolidation		1,720,000.00	116,000.00	1,133,000.00	2,969,000.00 (D)	
Bonded debt				1,250,000.00		1,250,000.00
Notes payable	1,200,000.00		45,000.00	1,286,000.00		2,531,000.00
Accounts payable	18,300.00	113,400.00		322,000.00		453,700.00
Reserves for depreciation:						
Machinery and equipment		292,400.00		48,000.00		340,400.00
Buildings		95,500.00	113,000.00	310,000.00		518,500.00
	$5,429,100.00	$3,934,263.00	$1,431,730.00	$5,283,000.00	$5,015,000.00	$11,063,093.00

One of the most interesting points raised by this problem is the establishment of a reserve for unrealized inter-company profits on the sale of fixed assets by company "A" to company "D." When company "A" sold the building to company "D" it virtually sold 92 per cent. of it to itself and 8 per cent. to the minority stockholders of company "D." Therefore, 92 per cent. of the profit, or $506,000, must be regarded as an unrealized inter-company profit, while 8 per cent., $44,000, would appear to be properly regardable by company "A" as a profit for which no reserve would have to be established.

If a consolidated balance-sheet had been prepared at the date of the sale, a reserve for inter-company profit in the amount of 92 per cent. of $550,000, or $506,000, would have been necessary. In considering what reserve is necessary at the present time it may be helpful to look forward to the end of the life of the building. During the twenty-five-year period in which "D" will occupy the building its profits will be $550,000 less than they would have been if the building had been purchased for $1,000,000. This is clearly true because the depreciation will be $1,550,000 instead of $1,000,000. If the inter-company sale at a profit results in reducing "D's" profits $550,000 during the twenty-five years, it will also result in reducing "A's" profits 92 per cent. of $550,000, or $506,000. At the end of twenty-five years company "A" would, therefore, be justified in considering that the profit taken up at the time of the sale compensates it for the reduced profits reported by company "D" during the twenty-five years. In other words, while company "A" is not justified in taking up the $506,000 as a profit at the time of the sale, it is justified in taking it up little by little through the twenty-five years to offset the reduced profits on "D's" operations.

The present status, therefore, appears to be as follows:

Total inter-company profit		$550,000.00
Less: 8% thereof, regarded as immediately realized on the theory that 8% of the plant was sold to the minority interests		44,000.00
Remainder, unrealized profits at the date of the sale		506,000.00
Total inter-company profit	$550,000.00	
Depreciation rate per annum	4%	
Depreciation of profit element per annum	$ 22,000.00	
Years expired	5	
Total depreciation of profit element	$110,000.00	
Holding company's stock interest	92%	
Reduction of profit to holding company during five years		101,200.00
Reserve required		$404,800.00

If company "D" were a manufacturing company a further complication would arise from the fact that the depreciation on the building would have entered into the manufacturing cost and, to the extent that finished goods remain in company "D's" inventory, a portion of the profit on the sale of the plant would still be unrealized profit in inventories. However, the candidate in the examination was mercifully spared the difficulty of determining any unrealized profit of this nature for inclusion in the reserve because company "D" is a selling company and its depreciation would be regarded as an expense, all of which would be chargeable against current income, and none of which would find its way into inventory valuations.

Following is the consolidated balance-sheet prepared from the foregoing working papers:

COMPANY "A" AND SUBSIDIARIES
Consolidated balance-sheet
(Date)
Assets

Current assets:			
Cash		$742,580.00	
Accounts receivable		2,381,300.00	
Inventories:			
Raw material	$456,500.00		
Finished goods	1,485,200.00		
In process	167,313.00		
		2,109,013.00	
Marketable securities		615,000.00	
			$5,847,893.00
Fixed assets:			
Land		$590,000.00	
Buildings	$3,026,000.00		
Less: Reserve for depreciation	518,500.00		
		2,507,500.00	
Machinery and equipment:			
Machinery	$731,000.00		
Equipment	255,000.00		
Total	$986,000.00		
Less: Reserve for depreciation	340,400.00		
		645,600.00	
Patents		600,000.00	
			4,343,100.00
Deferred charges			13,200.00
			$10,204,193.00

Liabilities and Net Worth

Current liabilities:		
Accounts payable	$453,700.00	
Notes payable	2,531,000.00	
		$2,984,700.00
Bonded debt		1,250,000.00
Minority interest in capital stock and surplus		581,167.80
Reserve for unrealized profit on sale of building		404,800.00
Net worth:		
Capital stock	$2,000,000.00	
Surplus	2,983,525.20	
		4,983,525.20
		$10,204,193.00

This problem can also be solved, and perhaps more easily, by making adjustments in the working papers to take up, in the case of company "A" and company "B," their proportions of the surpluses of their subsidiaries.

In taking up "A's" and "B's" respective proportions of the surpluses of their subsidiaries, the solution is following the assumption, previously made, that the subsidiaries had neither a surplus nor a deficit at the date of acquisition and that, therefore, the surplus at the date of the consolidated balance-sheet represents profits from the date of acquisition to the date of the balance-sheet, less any dividends that may have been paid.

The adjustments necessary to take up the profits from stockholdings are computed as follows:

	"A"	"B"	"C"	"D"
Surplus, per books	$2,210,800.00	$212,963.00	$557,730	$634,000
"B's" interest in "C's" surplus, 95% of $557,730 (adjustment No. 1)		529,843.50		
"B's" adjusted surplus		742,806.50		
"A's" interest in:				
"D's" surplus=92% of $634,000 (adjustment No. 2)	583,280.00			
"B's" surplus=80% of $742,806.50 (adjustment No. 3)	594,245.20			
	$3,388,325.20	$742,806.50	$557,730	$634,000

These adjustments are applied in the following working papers, in which eliminations are made on the basis of book values at the date of the consolidated balance-sheet:

COMPANY "A" AND SUBSIDIARIES

Consolidated balance-sheet—Working papers (Date)

Assets	"A"	"B"	"C"	"D"	Adjustments Dr.	Adjustments Cr.	Eliminations	Consolidated balance-sheet
Land	$	$160,000	$130,000	$300,000	$	$	$	$590,000
Buildings		940,000	536,000	1,550,000				3,026,000
Equipment		135,000		120,000				255,000
Machinery		731,000						731,000
Patents	600,000							600,000
Investments:								
"A's Investment in Company "B"	1,200,000							
Add: A's profit from "B"					594,245.20 (3)			
Eliminate present book value							1,794,245.20 (C)	
"A's" Investment in Company "D"	276,000							
Add: A's profit from "D"					583,280.00 (2)			
Eliminate present book value							859,280.00 (B)	
"B's" investment in Company "C"		570,000						
Add: B's profit from "C"					529,843.50 (1)			
Eliminate present book value							1,099,843.50 (A)	
Owing from other companies included in the consolidation	2,853,000	116,000					2,969,000.00 (D)	
Inventories:								
Raw material		320,500	136,000					456,500
Finished goods		142,200	128,000	1,215,000				1,485,200
In process		167,313						167,313
Accounts receivable		496,300		1,885,000				2,381,300
Deferred charges		13,200						13,200
Cash	385,100	142,750	1,730	213,000				742,580
Marketable securities	115,000		500,000					615,000
Total	$5,429,100	$3,934,263	$1,431,730	$5,283,000			$6,722,368.70	$11,063,093

COMPANY "A" AND SUBSIDIARIES

Consolidated balance-sheet—Working papers (Date)—(*continued*)

Liabilities	"A"	"B"	"C"	"D"	Adjustments Dr.	Adjustments Cr.	Eliminations	Consolidated balance-sheet
Capital stock:								
Company "A"	$2,000,000	$	$	$	$	$	$	$2,000,000
Company "B"		1,500,000					$1,200,000.00 (C)	300,000 M
Company "C"			600,000				570,000.00 (A)	30,000 M
Company "D"				300,000			276,000.00 (B)	24,000 M
Surplus:								
Company "A"—								
Per books	2,210,800							
Profit from "B"						594,245.20 (3)		
Profit from "D"						583,280,00 (2)		
Reserve for profit on sale of building								404,800 R
Remainder								2,983,525.20 S
Company "B"—								
Per books		212,963						
Profit from "C"						529,843.50 (1)		
Minority—20% of present surplus								148,561.30 M
Eliminate—80% of present surplus							594,245.20 (C)	
Company "C"			557,730					
Minority—5%								27,886.50 M
Eliminate—95%							529,843.50 (A)	
Company "D"				634,000				
Minority—8%								50,720 M
Eliminate—92%							583,280.00 (B)	
Owing to companies in the consolidation		1,720,000	116,000	1,133,000			2,969,000.00 (D)	
Bonded debt				1,250,000				1,250,000
Notes payable	1,200,000		45,000	1,286,000				2,531,000
Accounts payable	18,300	113,400		322,000				453,700
Reserves for depreciation—								
Machinery and equipment		292,400		48,000				340,400
Buildings		95,500	113,000	310,000				518,500
Total	$5,429,100	$3,934,263	$1,431,730	$5,283,000	$1,707,368.70	$1,707,368.70	$6,722,368.70	$11,063,093