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AMERICAN INSTITUTE EXAMINATIONS

[NOTE.—The fact that these answers appear in THE JOURNAL OF ACCOUNTANCY should not cause the reader to assume that they are the official answers of the board of examiners. They represent merely the opinions of the editor of the *Students' Department*.]

EXAMINATION IN ACCOUNTING THEORY AND PRACTICE—PART I

May 17, 1934, 1:30 P. M. to 6:30 P. M.

Solve problems 1, 2 and 3 and either 4 or 5

No. 1 (35 points):

From the accounts and information given below prepare:
(a) Consolidated balance-sheet.
(b) Consolidated goodwill and capital surplus account.
(c) Consolidated earned surplus account.
(d) Any necessary comments required for correct interpretation of the accounts as presented.

BALANCE-SHEETS, December 31, 1933

	A Company	B Company	D Company
Accounts receivable	$ 346,480	$ 132,740	$ 68,740
Cash surrender value of life-insurance policies	15,480		
Cash in bank	224,682	59,420	9,720
Deferred charges	14,620	6,232	2,740
Inventories	462,000	267,032	109,630
Investment in B Company—4,000 shares at cost	600,000		
Investment in D Company—800 shares at cost		200,000	
Land, buildings, machinery and equipment	897,306	408,784	273,086
Receivable from D Company		16,836	
	$2,560,568	$1,091,044	$463,916
Accounts payable	$ 326,740	$ 127,630	$ 96,940
Reserve for depreciation	370,620	138,760	96,320
Reserve for bad debts	38,000	17,000	10,000
Capital stock—common:			
10,000 shares of $100 each	1,000,000		
5,000 shares of $100 each		500,000	
1,000 shares of $100 each			100,000
Earned surplus	825,208	307,654	143,820
Payable to B Company			16,836
	$2,560,568	$1,091,044	$463,916

EARNED SURPLUS ACCOUNTS

Surplus as at December 31, 1931....	$ 720,808	$ 285,672	$126,948
Net operating income:			
Six months ended June 30, 1932....	8,260	2,762	974
Six months ended December 31, 1932	12,390	4,710	2,978
Dividends on B Company stock received September 30, 1933.........	20,000		
Excess of proceeds of sale of E Company stock over cost..................	50,000		
Net operating income:			
Six months ended June 30, 1933....	32,640	11,690	3,276
Six months ended December 31, 1933	81,110	27,820	9,644
	$ 925,208	$ 332,654	$143,820
Dividends paid..................	100,000	25,000	
Earned surplus per books December 31, 1933.................	$ 825,208	$ 307,654	$143,820

The A Company acquired 3,750 shares of common stock of the B Company on January 1, 1933, and a further acquisition was made of 250 shares on June 30, 1933, the cost price in both cases being $150 a share. The B Company acquired 800 shares of the D Company—an 80% interest—on June 30, 1932, for $200,000.

The A Company owned all of the capital stock of the E Company from June 30, 1927, to September 30, 1933. At the latter date the stock was sold for $100,000, or $50,000 more than the purchase price. The net worth of the E Company amounted to $60,460 on June 30, 1927. By December 31, 1932, it had increased through earnings to $87,630 and by September 30, 1933, it showed further earnings, the capital and surplus then amounting to $93,920.

The inventory of the A Company at December 31, 1932, contained merchandise acquired from the E Company, valued at $18,700, the sum billed by the latter company. The goods had been produced by the E Company at a cost of $17,000.

Solution:

As formal working papers are not required by the examiners in a solution to this problem, it is possible to save considerable time by:

(1) Cross-adding, on the problem itself, the amounts of like assets and liabilities.

(2) Dropping out the inter-company accounts such as:

Investment in B Company
Investment in D Company
Receivable from D Company
Capital stock—B Company
Capital Stock—D Company
Earned surplus—all companies
Payable to B Company

(3) Inserting in the consolidated balance-sheet (a), the totals of the assets and liabilities obtained under (1) and the goodwill, capital surplus, consolidated surplus, and minority interests obtained in (b), (c), and schedule (1) following.

(a)

COMPANY A AND SUBSIDIARIES

Consolidated Balance Sheet, December 31, 1933

Assets

Current Assets:			
Cash in bank		$ 293,822.00	
Accounts receivable	$547,960.00		
Less—Reserve for bad debts	65,000.00	482,960.00	
Inventories		838,662.00	
Total current assets			$1,615,444.00
Cash surrender value of life-insurance policies			15,480.00
Deferred charges			23,592.00
Land, buildings, machinery and equipment		$1,579,176.00	
Less—Reserves for depreciation		605,700.00	973,476.00
Goodwill			17,662.40
			$2,645,654.40

Liabilities and Net Worth

Accounts payable		$ 551,310.00
Minority interest		212,838.48
Net worth:		
Capital stock—10,000 shares of par value of $100.00 each	$1,000,000.00	
Earned surplus	844,369.26	
Capital surplus	37,136.66	
Total net worth		1,881,505.92
		$2,645,654.40

(b) STATEMENT SHOWING COMPUTATION OF GOODWILL AND CAPITAL SURPLUS

	Book value				
	Total	Proportionate interest	Purchase price	Goodwill	Capital surplus
Acquisition by Company A of stock of Company B:					
Capital stock	$500,000.00				
Earned surplus, December 31, 1931	285,672.00				
Net operating income six months ended:					
June 30, 1932	2,762.00				
December 31, 1932	4,710.00				
Pro-rata share (80%) of profits of Company D accruing to Company B:					
Six months ended December 31, 1932:					
80% of $2,978.00	2,382.40				
Book value, December 31, 1932	$795,526.40				
75% thereof		$596,644.80	$562,500.00		$34,144.80
Net operating income six months ended June 30, 1933:					
Company B	11,690.00				
Pro-rata share of Company D:					
80% of $3,276.00	2,620.80				
Book value, June 30, 1933	$809,837.20				
5% thereof		40,491.86	37,500.00		2,991.86
Acquisition by Company B of stock of Company D:					
Capital stock	$100,000.00				
Earned surplus, December 31, 1931	126,948.00				
Net operating income six months ended June 30, 1932	974.00				
Book value at June 30, 1932	$227,922.00				
80% thereof		182,337.60	200,000.00	$17,662.40	
Totals		$819,474.26	$800,000.00	$17,662.40	$37,136.66

(c) COMPANY A AND SUBSIDIARIES

Analysis of Consolidated Surplus for the period January 1, 1932 to December 31, 1933

Balance, Company A—January 1, 1932			$720,808.00
Add:			
Profits for the year, 1932			20,650.00
Balance, Company A—December 31, 1932			$741,458.00
Add:			
Profits for the year 1933:			
Company A		$113,750.00	
Company B (applicable to Company A):			
Six months ended June 30, 1933: 75% of $11,690.00	$ 8,767.50		
Six months ended December 31, 1933: 80% of $27,820.00	22,256.00	31,023.50	
Company D (applicable to Company A):			
Six months ended June 30, 1933: 75% of 80% of $3,276.00	$ 1,965.60		
Six months ended December 31, 1933: 80% of 80% of $9,644.00	6,172.16	8,137.76	152,911.26
Profit on sale of stock of Company E			50,000.00
Total			$944,369.26
Deduct—Dividends paid			100,000.00
Balance, December 31, 1933			$844,369.26

Schedule I

Statement Showing Computation of Minority Interest

		Minority Interest	
	Net Worth	Per Cent	Amount
B Company:			
Capital stock	$ 500,000.00	20%	$100,000.00
Surplus, per balance-sheet	307,654.00	20%	61,530.80
Share of profits of D Company for the period June 30, 1932 to December 31, 1933	12,718.40	20%	2,543.68
Total	$ 820,372.40		$164,074.48

D Company:			
Capital stock	$ 100,000.00	20%	$ 20,000.00
Surplus, per balance-sheet	143,820.00	20%	28,764.00
Total	$ 243,820.00		$ 48,764.00
Total—both companies	$1,064,192.40		$212,838.48

NOTE—The minority stockholders in B Company have a 20% interest in the profits of D Company which accrued during the period of stockholding.

(d) Any necessary comments required for correct interpretation of the accounts as presented.

The information given in the last two paragraphs of the problem, relating to the net worth valuations of E Company, at different dates and the inter-company profits in inventories is not essential to the solution of the problem. The investment in the stock of E Company cost $50,000 and was sold prior to the balance-sheet date for $100,000, resulting in a profit on the sale of securities of $50,000 which profit was correctly recorded as a surplus credit in the accounts of A Company. The changes in the net worth of E Company, and the inter-company profits in inventories were not recorded in the accounts of A Company during the period that A Company owned and controlled E Company. Hence, no adjustments are necessary.

The following alternative method is more complete than is required for the examination but is presented here for explanatory purposes. In this solution the investment accounts are adjusted to reflect the net changes in the surplus accounts of the subsidiary companies resulting from the profits earned and dividends paid during the period of stock ownership, and eliminations are then made at present book values.

Adjustment (1)

Investment in stock of D Company	$12,718.40	
Surplus—B Company		$12,718.40

To record the proportionate net increase in B Company's investment in D Company since acquisition, as follows:

Profits for six months ended:

	Total	80%
December 31, 1932	$ 2,978.00	$ 2,382.40
June 30, 1933	3,276.00	2,620.80
December 31, 1933	9,644.00	7,715.20
Total	$15,898.00	$12,718.40

Adjustment (2)

Investment in stock of B Company	$19,161.26	
Surplus—A Company		$19,161.26
To record the proportionate net increase in A Company's investment in B Company since acquisition, as follows:		
During the period from January 1, 1933 to June 30, 1933:		
Profits of B Company	$11,690.00	
Profits of D Company (applicable to B Company)	2,620.80	
Increase	$14,310.80	
75% interest		$10,733.10
During the period from June 30, 1933 to December 31, 1933:		
Profits of B Company	$27,820.00	
Profits of D Company (applicable to B Company)	7,715.20	
Total	$35,535.20	
Dividends paid	25,000.00	
Net increase	$10,535.20	
80% interest		8,428.16
Total		$19,161.26

A COMPANY AND SUBSIDIARIES

Consolidated balance-sheet, working papers, December 31, 1933

Assets	A Company	B Company	D Company	Adjustments		Eliminations	Consolidated balance-sheet	
Accounts receivable..........	$ 346,480.00	$ 132,740.00	$ 68,740.00				$ 547,960.00	
Cash surrender value of life-insurance policies..........	15,480.00						15,480.00	
Cash in bank................	224,682.00	59,420.00	9,720.00				293,822.00	
Deferred charges............	14,620.00	6,232.00	2,740.00				23,592.00	
Inventories..................	462,000.00	267,032.00	109,630.00				838,662.00	
Investment in B Company....	600,000.00			(2) $19,161.26		(A) $656,297.92	37,136.66*	Capital surplus
Investment in D Company....		200,000.00		(1) 12,718.40		(B) 195,056.00	17,662.40	Goodwill
Land, buildings, machinery and equipment................	897,306.00	408,784.00	273,086.00				1,579,176.00	
Receivable from D Company..		16,836.00				(C) 16,836.00		
	$2,560,568.00	$1,091,044.00	$463,916.00			$868,189.92	$3,279,217.74	
Liabilities and capital								
Accounts payable............	$ 326,740.00	$ 127,630.00	$ 96,940.00				$ 551,310.00	
Reserve for depreciation......	370,620.00	138,760.00	96,320.00				605,700.00	
Reserve for bad debts........	38,000.00	17,000.00	10,000.00				65,000.00	
Capital stock—common:								
10,000 shares of $100 each...	1,000,000.00						1,000,000.00	
5,000 shares of $100 each...		500,000.00				(A) $400,000.00	100,000.00	Minority interest
1,000 shares of $100 each...			100,000.00			(B) 80,000.00	20,000.00	Minority interest
Earned surplus:								
A Company..............	825,208.00				(2) $19,161.26		844,369.26	
B Company..............		307,654.00			(1) 12,718.40	(A) 256,297.92	64,074.48	Minority interest
D Company..............			143,820.00			(B) 115,056.00	28,764.00	Minority interest
Payable to B Company.......			16,836.00			(C) 16,836.00		
	$2,560,568.00	$1,091,044.00	$463,916.00	$31,879.66	$31,879.66	$868,189.92	$3,279,217.74	

* Red

No. 2 (30 points):

As at December 31, 1931, the Pacific Company revalued all of its fixed property on the basis of estimated present replacement cost ("cost to replace new") and the application thereto of accrued depreciation computed according to the expired portion of the estimated life of each item as then determined. The difference between the depreciated value of the fixed assets, as shown by the books, and the depreciated replacement cost, was charged to "earned surplus" and credited to "reserve for revaluation of fixed assets," it being the company's intention to show depreciation in the profit-and-loss account, in future, as follows:

Depreciation based on old book values and revised lives..	$........
Less: Credit from "reserve for revaluation of fixed assets"..................................	....
	$........

No depreciation has been or is to be charged in the year of acquisition, but a full year's depreciation is to be charged in the year of expiration or abandonment. The policy of the company has been to depreciate its fixed assets on the basis of estimated life and to revise these estimates from time to time as conditions warrant. From the following statement prepare:

(1) Annual charges for depreciation and property losses for 1932 and 1933.

(2) Statement of "reserve for revaluation of fixed assets account" for the two years ended December 31, 1933.

						Revaluation Dec. 31, 1931	
Item	Date of purchase	Cost	Original estimated life	Estimated salvage value	Dep'n reserve Dec. 31, 1931 per books	Replacement cost	Revised life from Dec. 31, 1931
1	1919	$100,000	25 years	$10,000	$ 52,000	$ 70,000	12 years
2	1920	700,000	25 "	40,000	350,000	400,000	9 "
3	"	25,000	20 "	2,000	14,000	20,000	4 "
4	"	75,000	20 "	3,000	37,500	48,000	4 "
5	1923	200,000	15 "	12,000	140,000	140,000	12 "
6	"	50,000	20 "	3,000	22,500	40,000	12 "
7	1924	400,000	25 "	12,000	148,000	300,000	23 "
8	1925	50,000	20 "	2,000	18,000	45,000	14 "
9	1926	100,000	15 "	5,000	40,000	85,000	15 "
10	"	20,000	25 "	2,000	4,800	18,000	15 "

No change was made in salvage values when the fixed assets were revalued.
Item 1 was totally destroyed by fire December 31, 1932.
Item 7 was totally destroyed by fire December 31, 1933.

Solution:

As will be seen from Schedules I, II, and III the depreciable values of the fixed assets at December 31, 1931 were:

Cost basis..................................	$802,200
Appraisal basis.............................	630,700
Difference..............................	$171,500

This difference represents the amount charged to earned surplus and credited to the reserve for revaluation of fixed assets. Hence, no adjustments were made in the fixed asset or the reserve for depreciation accounts when the assets were revalued.

The entries to record the depreciation for the years 1932 and 1933 follow:

December 31, 1932:

Depreciation	$ 49,500	
Reserve for revaluation of fixed assets	22,152	
Reserve for depreciation		$ 71,652
To record depreciation for the year ended December 31, 1932.		

December 31, 1933:

Depreciation	47,000	
Reserve for revaluation of fixed assets	21,485	
Reserve for depreciation		68,485
To record the depreciation for the year ended December 31, 1933.		

The entries to clear the accounts of items 1 and 7 which were totally destroyed by fire on December 31, 1932 and 1933 follow:

December 31, 1932:

Reserve for depreciation	55,167	
Surplus (fire loss)	44,833	
Fixed asset (item 1)		100,000
To write off the undepreciated value of item 1 destroyed by fire on December 31, 1932.		
Reserve for revaluation of fixed assets	7,333	
Surplus (fire loss)		7,333
To transfer balance of item 1 from the reserve account.		

December 31, 1933:

Reserve for depreciation	168,870	
Surplus (fire loss)	231,130	
Fixed asset (item 7)		400,000
To write off the undepreciated value of item 7 destroyed by fire on December 31, 1933.		
Reserve for revaluation of fixed assets	17,530	
Surplus (fire loss)		17,530
To transfer balance of item 7 from the reserve account.		

Schedule I

THE PACIFIC COMPANY

Statement showing the annual charges for depreciation for the years 1932 and 1933 (based on December 31, 1931 book values and remaining lives as revised)

Item	Cost	Estimated salvage	Depreciation reserve December 31, 1931	Depreciable value December 31, 1931	Revised life from December 31, 1931	Depreciation 1932	Depreciation 1933
1	$ 100,000	$10,000	$ 52,000	$ 38,000	12	$ 3,167	$
2	700,000	40,000	350,000	310,000	9	34,444	34,444
3	25,000	2,000	14,000	9,000	4	2,250	2,250
4	75,000	3,000	37,500	34,500	4	8,625	8,625
5	200,000	12,000	140,000	48,000	12	4,000	4,000
6	50,000	3,000	22,500	24,500	12	2,042	2,042
7	400,000	12,000	148,000	240,000	23	10,435	10,435
8	50,000	2,000	18,000	30,000	14	2,143	2,143
9	100,000	5,000	40,000	55,000	15	3,666	3,666
10	20,000	2,000	4,800	13,200	15	880	880
Totals	$1,720,000	$91,000	$826,800	$802,200		$71,652	$68,485

Schedule II

THE PACIFIC COMPANY

Statement showing the annual charges for depreciation for the years 1932 and 1933 (based upon revised estimates of total life and revaluations of fixed assets)

Item	Replacement cost	Estimated salvage	Replacement cost—less salvage	Expired portion of estimated life	Accrued depreciation December 31, 1931	Depreciable value December 31, 1931	Revised life from December 31, 1931	Depreciation 1932	Depreciation 1933
1	$ 70,000	$10,000	$60,000	12/24	$ 30,000	$ 30,000	12	$ 2,500	$
2	400,000	40,000	360,000	11/20	198,000	162,000	9	18,000	18,000
3	20,000	2,000	18,000	11/15	13,200	4,800	4	1,200	1,200
4	48,000	3,000	45,000	11/15	33,000	12,000	4	3,000	3,000
5	140,000	12,000	128,000	8/20	51,200	76,800	12	6,400	6,400
6	40,000	3,000	37,000	8/20	14,800	22,200	12	1,850	1,850
7	300,000	12,000	288,000	7/30	67,200	220,800	23	9,600	9,600
8	45,000	2,000	43,000	6/20	12,900	30,100	14	2,150	2,150
9	85,000	5,000	80,000	5/20	20,000	60,000	15	4,000	4,000
10	18,000	2,000	16,000	5/20	4,000	12,000	15	800	800
Totals	$1,166,000	$91,000	$1,075,000		$444,300	$630,700		$49,500	$47,000

Schedule III

THE PACIFIC COMPANY

Statement showing details of the credit to the account "Reserve for revaluation of fixed assets" and the amount charged thereto for the years 1932 and 1933 and the balance at December 31, 1933

Items	Depreciable values December 31, 1931 — Cost basis	Depreciable values December 31, 1931 — Revaluation basis	Credit to reserve account	Revised life	Charges for the years — 1932	Charges for the years — 1933	Balance, December 31, 1933
1	$ 38,000	$ 30,000	$ 8,000	12	$ 667	$	$
2	310,000	162,000	148,000	9	16,444	16,444	115,112
3	9,000	4,800	4,200	4	1,050	1,050	2,100
4	34,500	12,000	22,500	4	5,625	5,625	11,250
5	48,000	76,800	28,800*	12	2,400*	2,400*	24,000*
6	24,500	22,200	2,300	12	192	192	1,916
7	240,000	220,800	19,200	23	835	835	
8	30,000	30,100	100*	14	7*	7*	86*
9	55,000	60,000	5,000*	15	334*	334*	4,332*
10	13,200	12,000	1,200	15	80	80	1,040
Totals	$802,200	$630,700	$171,500		$22,152	$21,485	$103,000

* Red.

Schedule IV

THE PACIFIC COMPANY

Statement of reserve for revaluation of fixed assets for the two years ended December 31, 1933

December 31, 1931	—Credit arising from the revaluation of fixed assets, per appraisal		$171,500
December 31, 1932	—Depreciation	$ 22,152	
	Fire loss—item 1	7,333	
December 31, 1933	—Depreciation	21,485	
	Fire loss—item 7	17,530	
	Balance	103,000	
		$171,500	$171,500

No. 3 (15 points):

A B C Co., patentee and subsidiary of John Doe & Co., assembled and sold a patented machine for which all the parts were made by and bought from John Doe & Co.

During five years of operations, A B C Co. had sold 2,800 machines at $3,000 each and had made a gross profit of $500 a machine after deducting its overhead of 25% of direct costs. Included in these costs was $1,500 a machine for parts and this included a gross profit of $200 to John Doe & Co., whose overhead ran to 30% of its direct costs.

Both John Doe & Co. and the A B C Co. were equipped to make and sell without additional overhead 25% more machines than had been sold.

A B C Co. together with John Doe & Co., had sued an infringing company for damages representing loss of business and consequent loss of profit. The infringing company had made and sold 460 machines at $2,500 each in the same period and the A B C Co. obtained judgment for the full amount of its claim and costs.

X Y Co., the infringer, organized solely for the assembly and sale of the machine, was a subsidiary of the Z Co. (made co-defendant). The latter company made and sold the infringer all the parts for the infringing machine. The books of the X Y Co. showed the following figures:

	Net profit	Cost of parts	Overhead
1st year	$ 25,000	$ 77,000	$ 23,000
2nd year	50,000	148,500	51,500
3rd year	60,000	187,000	53,000
4th year	55,000	165,000	55,000
5th year	40,000	115,500	44,500
	$230,000	$693,000	$227,000

The sales to the X Y Co. included 10% profit to the Z Co. The X Y Co.'s closing inventory of $25,300 was taken at invoiced cost and consisted of unassembled parts. The Z Co. had no inventory.

The X Y Co. satisfied the judgment in full.

(1) What was the amount for which the A B C Co. on behalf of itself and its parent company sued the X Y Co. and its parent Z Company?

(2) How much did the latter two lose or make, excluding costs of suit, interest and any scrap value?

Solution:

(1) The first step will be the computation of the unit direct costs of John Doe & Co. and A B C Co., as follows:

	A B C Co.	John Doe & Co.
Sales price	$ 3,000	$ 1,500
Gross profit	500	200
Cost	$ 2,500	$ 1,300
Overhead, in relation to direct cost, is stated respectively as 25% and 30%; in relation to total cost, therefore, overhead would be respectively:		
A B C Co. 25/125	500	
John Doe & Co. 30/130		300
Direct costs would therefore be	$ 2,000	$ 1,000

Since "both (companies) were equipped to make and sell without additional overhead 25% more machines than had been sold," and since the X Y Co. sales (460 machines) represented only 17% of the A B C sales, loss of profit to the A B C Co. and Doe Co. may be taken as the difference between sales price and direct cost:

	A B C Co.	John Doe & Co.
Sales price	$ 3,000	$ 1,500
Direct cost	2,000	1,000
Loss of profit	$ 1,000	$ 500
Unit sales of X Y Co.	460	460
Total loss of profit	$460,000	$230,000

The amount of the damages due to the infringement was therefore $460,000 plus $230,000, or $690,000.

The loss of profit to the A B C Co. is based on its own sales prices and costs, rather than those of the X Y Co. (sales price $2,500, direct cost about $1,500), since if the A B C Co. had made the sales made by the X Y Co., it would presumably have obtained its regular sales prices and incurred its same direct costs. The differences in prices and costs appear to indicate a difference in product, but it must necessarily be assumed that A B C Co. would have sold an additional 460 of its own machines.

No loss was suffered by A B C Co. through Z Co.'s production of the parts remaining in the X Y Co. inventory.

(2) The "net" loss of the X Y Co. and Z Co. is determined as follows:

Damages paid	$690,000	
Cost of inventory now unusable (90% of $25,300)	22,770	
Total		$712,770
Less net profit on sale of 460 machines:		
X Y Co.	$230,000	
Z Co. (10% of $693,000)	69,300	299,300
Net loss		$413,470