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Students' Department

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AMERICAN INSTITUTE EXAMINATIONS

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Examination in Accounting Theory and Practice—Part II

May 15, 1936, 1 P. M. to 6:30 P. M.

Solve problems 1 to 6 and problem 7 or 8.

No. 1 (20 points):

You are requested by a brewery to recommend the proper procedure of accounting for its kegs. The following information is supplied:

(a) Kegs are purchased and remain the property of the brewery.
(b) A charge of $5 (the approximate cost) is made to the customer for each keg containing the beer sold, with the privilege of returning the empty keg and receiving $5 credit.
All kegs are ultimately returned by the customer.
(c) Kegs are periodically reconditioned by outsiders and will last twenty years.

(1) Describe, as you would in a system report, the accounts that should be kept, the regular charges and credits thereto and the means whereby the accounts can be made to furnish a proper accounting control of the kegs.
(2) Prepare the journal entries for the aforesaid charges and credits.
(3) How would you show the following items on the brewery's balance-sheet?
(a) 28,000 kegs owned.
(b) 10,000 kegs with customers.
(c) 3,000 kegs in the warehouse and shipping room, filled with beer.
(d) 15,000 kegs in the warehouse, new and returned by customers.

Solution:

(1) The following accounts should be kept for control of the kegs:

Kegs is a fixed asset account which should be charged, at cost, with all kegs acquired. Any kegs sold or discarded should be credited to this account at their cost.

A separate account to support this general ledger account should be kept in the receiving and shipping room, in which a record should be maintained showing the number of:

(1) Empty kegs in warehouse.
(2) Filled kegs on hand.
(3) Kegs in hands of customers.

Transfers between the three accounts would be reflected by reciprocal charges and credits (by number of kegs), and the total kegs on hand would always remain in agreement with the "kegs" account in the general ledger. Daily reports should be required of the drivers to ascertain the number of kegs in possession of the customers.

Reserve for depreciation—kegs. Credits would represent the annual depreciation allowance (5%). Charges would represent accrued depreciation on any kegs sold or retired from use.

Depreciation—kegs. Account should be charged with the annual provision for depreciation at the rate of 5 per cent. of the cost of the kegs. This is an expense account to be shown as a charge against operations.

Reconditioning cost—kegs. Charges would represent actual expenditures incurred to recondition the kegs. This account is also an expense account to be shown as a charge against operations.

Accounts receivable—kegs. As "all kegs are ultimately returned by the customer," a separate account should be set up to account for the $5.00 charge for each keg delivered to the customers. The offsetting credit is entered in an account called "Reserve for returnable kegs." As each keg is returned, the reserve account is charged, and the accounts receivable account is credited at $5.00 each. If any charge for kegs is paid by the customer, cash is charged and accounts receivable are credited.

To facilitate the accounting for the kegs, a separate column could be used in both the sales record and the individual customers' accounts, in which the keg charges and credits may be entered.

Reserve for returnable kegs. Account should be credited with $5.00 for each keg delivered and charged at the same rate for each keg returned. The balance in this account represents at all times the amount creditable to the customers for kegs in their possession. Any excess of the balance in this account over the balance in the account "accounts receivable—kegs" represents the amount refundable, in cash, to customers for kegs paid for by them.

(2) The journal entries to record the above mentioned charges and credits in the accounts follow:

Kegs	$140,000	
Accounts payable		$140,000
To record the purchase of 28,000 kegs at $5.00 each.		
Depreciation—kegs	7,000	
Reserve for depreciation—kegs		7,000
To provide for depreciation at the rate of 5% per annum on kegs costing $140,000.		
Reconditioning cost—kegs	1,000	
Accounts payable		1,000
To record the (assumed) cost of reconditioning kegs.		
Accounts receivable—kegs	125,000	
Reserve for returnable kegs		125,000
To record the charges made for kegs delivered to customers at the rate of $5.00 each. (It is assumed that 25,000 kegs were delivered.)		
Reserve for returnable kegs	75,000	
Accounts receivable—kegs		75,000
To record the (assumed) return of 15,000 kegs by customers.		
Cash	2,500	
Accounts receivable—kegs		2,500

To record the (assumed) payment for 500 kegs by customers.		
Loss on kegs discarded	$ 950	
Reserve for depreciation—kegs	50	
Kegs		$1,000
To record the loss, and to reverse the accrued depreciation on (assumed) 200 kegs discarded. Deprecia-, tion thereon amounted to (5% of $1,000), $50.		
Cash	1,450	
Reserve for depreciation—kegs	75	
Gain on kegs sold		25
Kegs		1,500

To record the following:

(Assumed that 300 kegs were sold for $1,450.)

Cash received	$1,450
Accrued depreciation	75
Total	$1,525
Cost	1,500
Gain on sale	$ 25

(3) The items would appear in the balance-sheet as follows:

(a) 28,000 kegs owned would appear under the fixed asset section of the balance-sheet:

Kegs	$140,000	
Less—reserve for depreciation	7,000	$133,000

(b) 10,000 kegs with customers would appear as a current liability as follows:

Reserve for returnable kegs	$ 50,000	
Less—accounts receivable—kegs	47,500	$ 2,500

(c) 3,000 kegs in the warehouse and shipping room, filled with beer, and

(d) 15,000 kegs in the warehouse, new and returned by customers, are all included in the inventory of kegs owned and are shown under (a) above.

No. 2 (24 points):

Phoenix Smelting Company (Co. A) has agreed to purchase the minority interest in Phoenix Mining Co. (Co. B). Their balance-sheets show:

	(Co. A) Phoenix Smelting Co.		(Co. B) Phoenix Mining Co.
Assets:			
Tangible assets	$3,764,513		$2,264,718
Goodwill	500,000		
91,000 shares of Co. B	1,270,000	5,373 shares Co. A	622,443
	$5,534,513		$2,887,161

Liabilities:

Creditors	$ 367,423		$ 133,675
Capital stock 40,000 shares	4,000,000	100,000 shares	2,500,000
Surplus	1,167,090		253,486
	$5,534,513		$2,887,161

The stock is to be acquired at asset value, but in the computation the goodwill of either company is not to be considered. How much should be paid to the minority stockholders per share of Company B? Do not carry your computation further than whole cents per share.

Solution:

The net assets of Co. A after deducting the goodwill and the investment of Co. B amount to:

Tangible assets	$3,764,513
Creditors	367,423
Net	$3,397,090

The net assets of Co. B after deducting the investment of Co. A amount to:

Tangible assets	$2,264,718
Creditors	133,675
Net	$2,131,043

As the question requires the amount to be paid to the minority stockholders for each share of Company B stock held, the above amounts may be reduced by the number of shares (100,000) of Company B stock outstanding. The use of the reduced amounts of $33.97 and $21.31 will simplify the solution.

Co. A owns (91,000 ÷ 100,000) 91% of Co. B and

Co. B owns (5,373 ÷ 40,000) 13.4325% of Co. A.

The value of each share of Co. B may be expressed as follows:

$$
\begin{aligned}
B &= \$21.31 + .134325\,(\$33.97 + .91B) \\
&= \$21.31 + \$4.56 + .1222B \\
B - .1222B &= \$25.87 \\
.8778B &= \$25.87 \\
B &= \$29.47, \text{ the amount to be paid, per share.}
\end{aligned}
$$

No. 3 (15 points):

A corporation owning a deposit of glass sand has a capital stock of $500,000 and a surplus of $67,500. Its fixed charges, interest, management expense, etc., amount to $43,000 a year. This amount is constant and not affected by the output.

The accounts show that it costs $3.60 a ton to operate the deposit. This amount includes depletion and all costs except the fixed charges mentioned above, but it does not include state and federal income taxes. The selling price is $6 a ton.

State taxes amount to 4½% of the income; the federal income tax is 13¾% and is not allowed as a deduction in computing the state tax.

How many tons a year must be sold in order that the corporation may make 7% on its investment (capital stock plus surplus)?

How many tons must be sold if the return is to be 8%?
In each case the return is to be computed after payment of the income taxes. Fractional parts of tons should be ignored.

Solution:

(a) Computation showing the number of tons that must be sold in order that the corporation may make 7% on its investment:

The amount of net income desired is:	
7% ($500,000+$67,500)	$39,725.00
Federal income tax	6,332.97
Net income before federal income tax:	
$39,725÷(100.00%−13.75%) 86.25%	$46,057.97
State taxes	2,170.27
Net income before state taxes:	
$46,057.97÷(100.00%−4.5%) 95.5%	$48,228.24
Fixed charges	43,000.00
Gross profit	$91,228.24
The gross profit per ton is $6.00−$3.60, or	$ 2.40
The number of tons that must be sold is, therefore, $91,228.24÷ $2.40, or	38,012 tons

(b) Computation showing the number of tons that must be sold in order that the corporation may make 8% on its investment:

The amount of net income desired is:	
8% ($500,000+$67,500)	$45,400.00
Federal income tax	7,237.68
Net income before federal income tax:	
$45,400.00÷86.25%	$52,637.68
State taxes	2,480.31
Net income before state taxes:	
$52,637.68÷95.5%	$55,117.99
Fixed charges	43,000.00
Gross profit	$98,117.99
The number of tons that must be sold is, therefore, $98,117.99÷ $2.40, or	40,882 tons

No. 4 (15 points):

The members of a medical society are classified according to the number of years each one has been in practice. They pay admission fees and annual dues as follows:

Class	Years in practice	Admission fees	Annual dues
A	Over 25	$150	$100
B	10–25	75	50
C	Under 10	None	25

Dues are payable for the entire year, irrespective of the date on which membership becomes effective.

No refunds are made on account of resignations, expulsions, etc.

Members reinstated are required to pay a full year's dues as of the date of reinstatement but no admission fees.

Transfers to higher classes become effective as of the beginning of the year and involve no admission fees.

During the years 1933, 1934 and 1935 the following changes took place in the membership:

	1933			1934			1935		
	A	B	C	A	B	C	A	B	C
Balance at beginning of year	150	275	120	152	285	130	147	304	158
Add:									
Elections	5	14	39	2	12	63	3	7	138
Reinstatements	2	3	1	1	2	2		1	1
Transfers (per contra)	17	23		10	31		14	19	
	24	40	40	13	45	65	17	27	139
	174	315	160	165	330	195	164	331	297
Deduct:									
Deaths	9	3	2	13	2	1	11	5	2
Resignations	10	5	2	3	11	4	4	10	5
Expulsions	3	5	3	2	3	1	1	5	1
Transfers (per contra)		17	23		10	31		14	19
	22	30	30	18	26	37	16	34	27
Balance at end of year	152	285	130	147	304	158	148	297	270
		567			609			715	

In the three years the expenses respectively amounted to $39,621, $41,236 and $44,787. There are no outside sources of revenue.

Although the membership is increasing, the society finds it more and more difficult to balance its budget, and it is proposed to remedy this condition and provide the funds for increased activity by making the following changes in the members' fees and dues, viz.:

1. Class C members to pay $25 admission fees.
2. Class C members to pay $50 when they become class B members.
3. Class B members to pay $75 when they become class A members.
4. Class C dues to be increased to $40 and class B dues to $75 per annum.

From the foregoing data prepare:

(a) A statement showing income and expenses for each of the years 1933, 1934 and 1935.

(b) A statement of income and expenses for 1935 as they would have been if the proposed increases in fees and dues had become effective at the beginning of that year. It is understood that the increases had had no effect upon the changes in membership.

Solution:

A MEDICAL SOCIETY

Statement of income and expenses—by years—for the three years ended December 31, 1935

	Class A			Class B			Class C			
	Number	Per member	Total	Number	Per member	Total	Number	Per member	Total	Total
Year 1933:										
Income:										
Admission fees	5	$150.00	$ 750.00	14	$75.00	$ 1,050.00				$ 1,800.00
Annual dues	174	100.00	17,400.00	298	50.00	14,900.00	137	$25.00	$3,425.00	35,725.00
			$18,150.00			$15,950.00			$3,425.00	$37,525.00
Expenses										39,621.00
Net loss										$ 2,096.00
Year 1934:										
Income:										
Admission fees	2	$150.00	$ 300.00	12	$75.00	$ 900.00				$ 1,200.00
Annual dues	165	100.00	16,500.00	320	50.00	16,000.00	164	$25.00	$ 4,100.00	36,600.00
			$16,800.00			$16,900.00			$ 4,100.00	$37,800.00
Expenses										41,236.00
Net loss										$ 3,436.00
Year 1935:										
Income:										
Admission fees	3	$150.00	$ 450.00	7	$75.00	$ 525.00				$ 975.00
Annual dues	164	100.00	16,400.00	317	50.00	15,850.00	278	$25.00	$ 6,950.00	39,200.00
			$16,850.00			$16,375.00			$ 6,950.00	$40,175.00
Expenses										44,787.00
Net loss										$ 4,612.00

A MEDICAL SOCIETY

Pro-forma statement of income and expenses—for year ended December 31, 1935

Under proposed change in admission fees, transfer fees and dues

	Class A			Class B			Class C			
	Number	Per member	Total	Number	Per member	Total	Number	Per member	Total	Total
Income:										
Admission fees	3	$150.00	$ 450.00	7	$75.00	$ 525.00	138	$25.00	$ 3,450.00	$ 4,425.00
Transfer fees	14	75.00	1,050.00	19	50.00	950.00				2,000.00
Annual dues	164	100.00	16,400.00	317	75.00	23,775.00	278	40.00	11,120.00	51,295.00
			$17,900.00			$25,250.00			$14,570.00	$57,720.00
Expenses										44,787.00
Net profit										$12,933.00

Comment:

It will be seen that for the purpose of computing dues, the total membership less only transfers at beginning of year may be used, inasmuch as dues are payable "for the entire year irrespective of the date on which membership becomes effective," and "no refunds are made."

No. 5 (8 points):

The Q Company, with all its four subsidiaries A, B, C and D located abroad, requires a consolidated balance-sheet for a special purpose at a date other than the end of a fiscal period. The subsidiary companies' balance-sheets and profit-and-loss accounts of that date are available and it is found that the inter-company balances do not agree. All differences are traced however and are satisfactorily explained as follows:

On the books of Q Company—

A was charged with $516.79 for furniture.
C " " " 1,828.00 for machinery.

On the books of A—

B was charged with $2,083.16 for furniture.

On the books of B—

Q was charged with $10,021.02 for cash remitted.
C " " " 1,858.78 for merchandise.

On the books of C—

Q was charged with $2,020.00 for commission, but this was not allowed by Q Company.
A was credited with $520.50 for a cash sale from A's merchandise held on consignment by C. Of this amount 20% was profit.

On the books of D—

Q was credited with $600 for cash remitted to D by a Q company customer.
A was credited with $380 for a sale from A's merchandise held on consignment by D. Of this amount 25% was profit.

Time does not permit the adjustment of the books and for present purposes it is intended to make the required changes directly on the consolidated balance-sheet.

Prepare a summary of the increases and decreases under the several balance-sheet headings. Disregard foreign exchange.

(See next page for solution)

Solution:

Q Company and Its Subsidiaries, Companies A, B, C, and D

Statement showing the summary of the increases and decreases in the consolidated balance-sheet accounts

Date

	Increases and Decreases		Current accounts offset		To be taken up on the books of	Current account charged by
	Debits	Credits	Debit	Credit		
Furniture:						
Charged against "A" by "Q"	$ 516.79			$ 516.79	A	Q
Charged against "B" by "A"	2,083.16			2,083.16	B	A
Total	$ 2,599.95					
Machinery:						
Charged against "C" by "Q"	1,828.00			1,828.00	C	Q
Cash:						
In transit to "Q" from "B"	$10,021.02			10,021.02	Q	B
Inventories:						
Charged against "C" by "B"	$ 1,858.78			1,858.78	C	B
Credited to "A" by "C": 80% of $520.50		$ 416.40	$ 416.40		A	C
Credited to "A" by "B": 75% of $380.00		285.00	285.00		A	D
Net increase in inventories	$ 1,157.38					
Consolidated surplus:						
Profit on consignment sales:						
Credited to "A" by "C": 20% of $520.50		$ 104.10	104.10		A	C
Credited to "A" by "D": 25% of $380.00		95.00	95.00		A	D
Commission cancelled: Charged to "C" by "Q"	$ 2,020.00			2,020.00	C	Q
Net decrease in surplus	$ 1,820.90					
Accounts receivable:						
Credited to "Q" by "D"		$ 600.00	600.00		Q	D
Net decrease in inter-company accounts		$16,827.25	16,827.25			
Totals	$17,427.25	$17,427.25	$18,327.75	$18,327.75		