Bonds with a par value of $6 million are issued on January 1, 1989. Assume that they have a life of ten years and that the coupon rate is 6 percent. They were issued at a time when the market rate was 8 percent.

a. What was the issue price of the bonds?

*Time-line this problem first!!*

\[
a. \text{ Issue price is } $6 \text{ million } \times 0.463 + (\$6 \times 6 \text{ percent}) \times 6.710 = \$2,778,000 + 2,415,601 = \$5,193,601
\]

*Then create an amortization table:*

\[
\begin{align*}
5,193,601 & + 5,193,601 \times 0.08 - 360,000 = 5,249,089 \\
5,249,089 & + 5,249,089 \times 0.08 - 360,000 = 5,309,016
\end{align*}
\]

b. What will the interest expense be in the second year of the bonds life?

*Interest in the second year = 5,249,089 \times 0.08 = \$419,927*

c. What will the change in the bond payable (net) account be in that second year?

*5,309,016 less 5,249,089 = \$59,927*

d. If the market rate rises to 10 percent, what amount of money would need to be set aside to refund the bond?

*Redo the bond calculation, using a 10 percent discount rate and an 8 year horizon.*

\[
6,000,000 \times 0.467 + 360,000 \times 5.335 = 2,802,000 + 1,920,600 = \$4,722,600
\]

e. If the company decided to replace the old bond with a new one and gives the new one a face value equal to the old, and a term equal to 10 years, what would the new coupon rate have to be?

*Redo the bond calculation, but solve for the coupon now:*

\[
6,000,000 \times 0.386 + \text{Coupon} \times 6.145 = 4,722,600
\]

\[
\text{Coupon} = (4,722,600 - 2,316,000) / 6.145 = \$391,635
\]
**Bonds Fall 1996 EMBA Test 2 Q9**

The New Boston Company issued $300,000 of 6% bonds on January 1, 1994 payable semiannually. The bonds were expected to yield 8% interest per year. The maturity date of the bonds is December 31, 2003. What price will they sell for?

\[ \text{According to my computations, } 259,110 = 300,000 \times 0.456 + 9,000 \times 13.590 \]

What is the interest expense for 1994. *(Explain to yourself why the other answers are wrong.)*

- a. $18,000
- b. $20,729
- c. $15,547
- d. $20,783
- e. None of the above: State your answer in this case

\[ 259,110 + 10,364 - 9,000 = 260,474 \]
\[ 260,474 + 10,419 - 9,000 = 261,893 \]

*Interest expense for year is 10,364 + 10,419 = 20,783*

Continue to consider the above facts. At June 30, 1995, and after payment of the coupon, the market rate went to 6%, what gain or loss would Boston Company incur if it repurchased the bonds?

*One more period of amortization*

\[ 261,893 + 10,476 - 9,000 = 263,369 \]

*New bond is at par i.e., 300,000 so they would register a loss of $36,631 – should they be foolish enough to repurchase it.*

**Asset exchange Fall 1996 EMBA Test 2 Q4**

Kelly Company exchanged copies of Word 6.0 that cost $8,000 and normally sold for $12,000 for a new delivery truck with a list price of $13,000. The delivery truck should be recorded on Kelly’s books at

- a. $8,000
- b. $8,667
- c. $12,000
- d. $13,000

*Dissimilar transaction — record a gain by entering truck at $12,000 (ignore list)*
**Asset exchange Fall 1996 EMBA Test 2 Q5**
What answer would you record if the copies of Word 6.0 were exchanged for copies of WordPerfect 6.0 which had a list price of $13,000 and normally sold at a discount for $12,000?

*Similar transaction — no gain, enter new software at book of old ie $8,000 (ignore list)*

**Capitalizing vs expensing Fall 1997 PMBA Test 2 Q1**
Windsor Enterprises incurred the following expenditures relating to its plant building during 1996

- Continuing and frequent repairs $30,000
- Repainting the plant building 10,000
- Major improvements to the electrical wiring system 32,000
- Partial replacement of roof tiles 14,000

How much should be charged to repair and maintenance expense in 1996?

*The only item that adds to the building’s store of benefits are the major improvements to the electrical system. All the rest must be expensed. Answer $54,000*

**Capitalizing vs expensing Fall 1997 PMBA Test 2 Q3**
Theoretically, which of the following costs incurred in connection with a machine purchased for use in a company's manufacturing operations would be capitalized?

<table>
<thead>
<tr>
<th>Insurance on machine in transit</th>
<th>Testing and preparation of machine for use</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. No</td>
<td>No</td>
</tr>
<tr>
<td>b. No</td>
<td>Yes</td>
</tr>
<tr>
<td>c. Yes</td>
<td>No</td>
</tr>
<tr>
<td>d. Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Both are part of getting the machine ready for its proposed use so both should be capitalized. Answer (d)*
Capitalizing vs expensing Fall 1997 PMBA Test 2 Q6
On March 1, 1997 Mary Jane Enterprises purchased a tract of land as a factory site for $550,000. An existing building on the property was razed and construction was begun on a new factory building in April 1997. Additional data are available as follows:

<table>
<thead>
<tr>
<th>Cost</th>
<th>$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of razing old building</td>
<td>55,000</td>
</tr>
<tr>
<td>Title insurance and legal fees to purchase land</td>
<td>40,000</td>
</tr>
<tr>
<td>Architect's fees</td>
<td>85,000</td>
</tr>
<tr>
<td>New building construction cost</td>
<td>1,650,000</td>
</tr>
</tbody>
</table>

What should the capitalized cost of the building be?

*The purchase cost of the land, the cost of razing the old building, and the title and legal fees to purchase the land are all part of the getting the land ready. The only building costs here are the architect’s fees and the construction cost, giving a total of $1,735,000.*

Capitalizing vs expensing Fall 1996 EMBA Test 2 Q7
Which should not be capitalized?

a. rearrangements
b. repairs
c. replacements
d. additions

*All except repairs add benefits. Answer is b. (Try tidying your office i.e., rearrange it to prove to yourself that rearrangements really do add benefits!! Better still tidy mine.)*

Defining a liability Fall 1996 EMBA Test 2 Q8
Which of the following is a necessary condition for recognizing an accounting liability.

a. a firm will sacrifice future resources at a specified determinable date
b. a firm has little or no discretion to avoid the transfer of future resources
c. a transaction or event giving rise to the firm's obligation has already occurred
d. all of the above

8. All of the above
Depreciation Fall 1997 PMBA Test 2 Q2
Boris Brothers purchased a machine that was installed and placed in service on January 2, 1994, at a total cost of $180,000. Residual value was estimated at $30,000. The machine is being depreciated over ten years by the double-declining balance method. What depreciation expense should Boris record for the year 1995?

First year depreciation = $180,000 x (2/10) = $36,000
Net book value at end of first year = $180,000 - 36,000 = $144,000
Second year depreciation = $144,000 x (2/10) = $28,800

Discounting notes Fall 1997 PMBA Test 2 Q8
On December 30, 1995, Coase Company purchased a machine from Patrick, Inc in exchange for a noninterest-bearing note requiring ten equal payments of $10,000. The first payment was made on December 30, 1995, and the others are due annually on December 30. The prevailing rate of interest for this type of note at date of issuance was 8%. What would be the book value of the note on December 31\textsuperscript{st}, 1996?

If you time-line the payments it is apparent that this is an annuity due i.e., payable in advance. The present value (the value at which all monetary instruments are entered) is therefore $10,000 plus the PV of the remaining 9 payments at 8 percent or $10,000 plus 10,000 x 6.247 for a total of $72,470. The amortization table follows:

\[
\text{Opening book} - \text{cash payment} + \text{interest} = \text{Closing book @ December 30} \\
72,470 - 10,000 + 62,470 \times .08 = 67,468
\]

Question asked for balance on December 31\textsuperscript{st} and assuming that the payment was made when due the answer is $57,468.

Disposal of machine Fall 1996 EMBA Test 2 Q6
Sherman Company purchased a new machine on May 1, 1983 for $25,000. At the time of acquisition, the machine was estimated to have a useful life of 10 years and an estimated salvage value of $1,000. The company has recorded monthly depreciation using the straight-line method. On March 1, 1992, the machine was sold for $800. What loss should be recognized from the sale of the machine?

e. 0
f. 2,000
g. 3,000
h. 3,400

Annual depreciation is (25,000 - 1,000)/10 = 2,400 After 8 years and 10 months accumulated depreciation is 21,200 (2,400 x 8 + 2,400 x 10/12). Net book value is 3,800.
Loss is $3,000.

Financial statements Fall 1997 PMBA Test 2 Q11

Using the financial statements provided, enter onto the ledger sheet the opening and closing accounts receivable, accounts payable and inventory balances; also the revenue for 1996. Add such other accounts as you deem necessary to complete the questions.

The question was intended to ensure that folk felt comfortable opening an annual report and finding the necessary information.

a. How much “materials and supplies” were purchased? Assume that this heading is the same as inventory.

\[ \text{Purchases} = \text{Cost of goods sold plus increase in inventory} \]

b. From what you are given, how much was paid on accounts payable? Assume that accounts payable is used for purchases only.

\[ \text{Payments} = \text{Purchases less increase in accounts payable} \]

c. What were their collections from sales?

\[ \text{Collections} = \text{Revenue less increase in accounts receivable} \]

Then identify from the annual report

d. The cash from operations

\[ \text{Cash from operations (simply write down the number)} \]

e. Cash flow that is available for shareholders

\[ \text{Cash flow that is available for shareholders. I entertained a range of answers here but essentially I was after cash from operations less cash used for investments less cash retained in the business for liquidity purposes less cash paid out to creditors.} \]

PS I quite often ask folk to compute ratios and do Du Pont analysis using a real annual report. This enables one to demonstrate that one knows where to find the ratios in the book and where to find the data in the annual report.
**EVA 1996 EMBA Test 2 Q15**

A company invests $24,000 into a project that is expected to yield cash from operations of $7,000 per year for 5 years. The project is depreciated using the double declining balance method. Shareholders estimate that they can earn 10% in alternative projects. What is the residual income, or equivalently their EVA, in the second year of the project?

<table>
<thead>
<tr>
<th>Operating income</th>
<th>7,000</th>
<th>7,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depreciation</td>
<td>(9,600)</td>
<td>(5,760)</td>
</tr>
<tr>
<td>Interest income</td>
<td>0</td>
<td>700</td>
</tr>
<tr>
<td>Opportunity cost</td>
<td>(2,400)</td>
<td>(2,640)</td>
</tr>
<tr>
<td>Residual Income</td>
<td>(5,000)</td>
<td>(700)</td>
</tr>
</tbody>
</table>

**Interest capitalization Fall 1997 PMBA Test 2 Q5**

Clay Company started construction of a new office building on January 1, 1984, and moved into the finished building on July 1, 1985. Of the building's $2,500,000 total cost, $2,000,000 was incurred in 1984 evenly throughout the year. Clay's incremental borrowing rate was 12% throughout 1984, and the total amount of interest incurred by Clay during 1984 was $102,000. What amount, if any, should Clay report as capitalized interest at December 31, 1984?

*This is a long-term work in progress so eligible for capitalizing interest. The amount to be capitalized is the average investment multiplied by the company's borrowing rate subject to an overall limit of the interest expense for the year. There was $500,000 outstanding for the year invested the previous year and an additional average $1,000,000 this year. Total potential capitalization at 12 percent interest is $180,000. Limit is $102,000.*

**Leases Fall 1997 PMBA Test 2 Q9**

On January 31, 1988, Clay Company leased a new machine from Saxe Corporation. The following data relate to the lease transaction at the inception of the lease.

- **Lease term:** 10 years
- **Annual rental payable at beginning of each lease year:** $50,000
- **Useful life of machine:** 15 years
- **Implicit interest rate:** 10%
- **Fair value of the machine:** $400,000

The lease has no renewal option, and the possession of the machine reverts to Saxe when the lease terminates. At the inception of the lease, what liability, if any, should Clay record?

*No bargain purchase option; asset is being held for less than 75% of its life; PV of lease payments is 84% of fair value only. Hence this is an operating lease. No liability.*
Leases Fall 1996 EMBA Test 2 Q12

The Fairbanks Company leased a machine at the beginning of 1989. The machine, which had cost the lessor $85,000, was properly capitalized by Fairbanks at $73,734.84. A lease payment of $12,000 is due at the start of each year. The expected life of the machine is 12 years, and the term of the lease is 10 years. At the beginning of 1999 the machine will be returned to the lessor. Both Fairbanks and the lessor use the straight-line method of depreciation. What amount of depreciation should Fairbanks record in 1989 for the machine?

a. $7,373.84  
b. $8,500.00  
c. $7,300.00  
d. $6,173.84

The machine will be returned at the end of 10 years so depreciate over the life of the lease and take 7,373.48 each year.

LIFO/FIFO Fall 1997 PMBA Test 2 Q10

Memorial Homes had 150 units or product on hand at January 1, 1995, costing $21 each. Purchases of product A during the month of January were as follows:

<table>
<thead>
<tr>
<th>Units</th>
<th>Unit cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 10</td>
<td>200</td>
</tr>
<tr>
<td>18</td>
<td>250</td>
</tr>
<tr>
<td>28</td>
<td>100</td>
</tr>
</tbody>
</table>

A physical count on January 31, 1995, shows 250 units of product A on hand. Assume all sales took place on January 20th.

a. What is the cost of the inventory at January 31, 1995 under the FIFO periodic method?

Under the periodic method compute the closing inventory i.e., 100 @ $24 plus 150 @ $23 or $2,400 plus 3,450 = $5,850.

b. What is the cost of the inventory at January 31, 1995 under the LIFO perpetual method?

Under the perpetual method compute the cost of sales when the sales are made. Using the assumption that all 450 items were sold on January 20th, 250 must have come from the $23 layer and the remaining 200 from the $22 layer for a total cost of sales of $10,150. The goods available for sale totaled $15,700; hence closing inventory must be
The Castle Company uses a periodic inventory system. Beginning inventory and inventory purchases for the year were as follows:

01/01 Beginning inventory   20 units @ $170 per unit
05/23 Purchased   20 units @ $125 per unit
11/05 Purchased 400 units @ $160 per unit
11/18 Purchased 100 units @ $175 per unit

At year-end, 50 units remain in inventory. What is the cost of inventory on a LIFO basis?

a. $7,500
b. 7,100
c. 8,750
d. 8,450
e. 8,000

*Use a periodic inventory system and compute closing inventory. LIFO means oldest stuff left in inventory i.e., 20 x 170 + 20 x 125 + 10 x 160 = $7,500*

What answer would you have selected if Castle Company had used a perpetual inventory system and sales had been

05/31 40 units
11/11 300 units
12/15 150 units

*Use a perpetual inventory system and compute cost of goods sold en route with just bought being those sold:*

\[
c1 = 20 \times 125 + 20 \times 170 = 5,900 \\
c2 = 300 \times 160 = 48,000 \\
c3 = 100 \times 175 + 50 \times 160 = 79,400
\]

Available for sale = 87,400 less cost of goods sold of 79,400 leaves closing inventory of 8,000

Assuming the periodic method, what would the LIFO reserve have been at the end of the year?

*FIFO periodic’s closing inventory = 50 \times 175 = 8,750*
Marketable securities Fall 1997 PMBA Test 2 Q4
Alto Corporation has a portfolio of equity securities which is held as a temporary investment. At the end of the second quarter of 1997, the cost of the portfolio was $84,000, and its market value was $77,000. At the end of the first quarter of 1997, the portfolio's market value was $77,500. Based on the information given, what accounting action is needed at the end of the second quarter?

a. A balance sheet valuation allowance account should be credited for $7,000
b. A balance sheet valuation allowance should be credited for $500
c. A $500 loss should be recognized in the income statement
d. A $500 loss should be recognized in other comprehensive income.

The portfolio has been held intact for at least 3 months so it would not appear to be actively traded. It must be an available for sale portfolio with gains and losses going to a valuation account in the balance sheet. The portfolio would have been written down to $77,500 at the end of the first quarter and must now be written down a further $500 with the loss in other comprehensive income. Answer (d).

Note receivable Fall 1996 EMBA Test 2 Q11
Taft Co. sells Lee Co. a machine, the usual cash price of which is $10,000, in exchange for an $11,800 noninterest-bearing note due three years from the date. If Taft records the note at $10,000, the overall effect will be (Interest revenue and interest income are the same terms):

a. a correct sales price and correct interest revenue over the three years
b. a correct sales price and understated interest revenue over the three years
c. an understated sales price and understated interest revenue over the three years
d. an overstated sales price and understated interest revenue over the three years

This appears to be entered correctly at its present value with interest correctly accrued.

Receivable accounting Fall 1997 PMBA Test 2 Q7
Jay Corporation sets aside 2 percent of its revenues each year as a bad debt allowance. Revenues in 1989 were $50 million -- all on credit. The allowance for bad debt at the start of the year was $1 million and the accounts receivable, excluding the bad debt allowance, at the start of the year was $18 million. If $40 million is collected during the year and $500,000 of the accounts receivable are written off at the end of the year, what is the receivable turnover using year end balances.
Answer: 50/26.5. Closing accounts receivable gross is $28M (or 18 + 50 - 40); closing allowance for doubtful accounts is $1.5M (or 1 + 2% of $50M - 0.5M) for a net of $26.5M in receivables.

Revenue recognition Fall 1997 PMBA Test 2 Q13
Jay Enterprises recognized all its revenues on the delivery basis. Because of difficulties that it was having in collecting its receivables, it decided to move certain of its goods onto the collection method. The revenue affected this past year is 20 percent of the total of $60 million. Their gross margin is 25 percent. What effect will this have on inventory turnover? Currently this is 9:1. What will the new inventory turnover be?

Original revenue was $60M and cost of goods sold was $45M to give a gross margin percentage of 25%. The revised revenue was $48M (take off 20% of 60M); and the revised cost of goods sold has to be $36M to keep the 25% margin intact. (Alternatively take off 20% of $45M.) The difference of $9M goes back into inventory. The original turnover was 9x so the original inventory must have been $5M. The new inventory is therefore $14M. Result is an inventory turnover of 2.57 equal to $36/14.

R&D Fall 1996 EMBA Test 2 Q13
If a company constructs a laboratory building to be used as a research and development facility, the cost of the laboratory building is matched against earnings as:

a. research and development expense in the period(s) of construction
b. depreciation deducted as part of research and development costs
c. depreciation or immediate write-off depending on company policy
d. an expense at such time as productive research and development has been obtained from the facility

The use of the building is charged to R&D expense i.e., depreciation, not the acquisition cost.

Transaction analysis Fall 1996 EMBA Test 2 Q14
Fill in the effects of the following transactions on your answer sheet showing their impact on cash, quick assets, current assets, working capital, and net income.

a. A company borrowed $1 million dollars to finance the building of a new manufacturing facility.

b. At the end of the year interest at 12% was due, but not paid.

c. The new facility required depreciating. The life of the building was estimated at 20 years.
d. The company paid $30,000 to Johnson Transportation for bringing building materials to the site.

e. The company undertook $400,000 of Research & Development in the new building in the first year after it was built.

<table>
<thead>
<tr>
<th>Description</th>
<th>Account</th>
<th>Cash</th>
<th>QA</th>
<th>CA</th>
<th>WC</th>
<th>NI</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. dr Cash</td>
<td>cr LT liabilities</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>0</td>
</tr>
<tr>
<td>b. dr Building</td>
<td>cr Interest payable</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>dr Expense</td>
<td>cr Interest payable</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>c. dr Inventory</td>
<td>cr Building</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>+</td>
<td>0</td>
</tr>
<tr>
<td>d. dr Inventory</td>
<td>cr Cash</td>
<td>-</td>
<td>-</td>
<td>w</td>
<td>w</td>
<td>0</td>
</tr>
<tr>
<td>dr Building</td>
<td>cr Cash</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>e. dr R&amp;D expense</td>
<td>cr Cash</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>