EXAM GUIDELINES

1. Please detach the last (blank) page, fold in half lengthwise, and write your name on it in LARGE block letters. Display this sign in front of you so that I can see it from the center of the room.

2. The exam must be completed within 80 minutes.

3. The total number of points in this exam is also 80, so budget about 1 minute / point. Avoid spending too much time on any one question.

<table>
<thead>
<tr>
<th>Question</th>
<th>Topic</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>PP&amp;E, depreciation, and deferred taxes</td>
<td>20</td>
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<tr>
<td>II</td>
<td>Marketable securities</td>
<td>20</td>
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<td>III</td>
<td>Present values and long-term debt</td>
<td>20</td>
</tr>
<tr>
<td>IV</td>
<td>Leases</td>
<td>20</td>
</tr>
</tbody>
</table>

4. Please work the problems in a clear, readable manner and show all computations. We will not grade what we cannot read.

5. If you feel that assumptions are necessary to solve a problem, please state your assumption and why it was necessary.

6. The following formulas may be useful for answering some of the questions.
   Present value factor for an ordinary annuity:
   
   \[ PVFA(n \text{ periods}, r) = \frac{1}{r} - \frac{1}{r(1+r)^n} \]
   
   Future value factor for an ordinary annuity:
   
   \[ FVFA(n \text{ periods}, r) = \frac{(1+r)^n}{r} - \frac{1}{r} \]

7. Calculators may be used for computations on this exam.

8. Good luck!
Abercrombie & Fitch (A&F) is a large and growing retail chain of 597 stores in the U.S. The following information has been extracted from the company’s February 1, 2003 annual report.

<table>
<thead>
<tr>
<th>(thousands of dollars)</th>
<th>2003</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross property, plant, and equipment</td>
<td>$585,642</td>
<td>$501,323</td>
</tr>
<tr>
<td>Accumulated depreciation</td>
<td>192,701</td>
<td>136,211</td>
</tr>
<tr>
<td>Net property, plant, and equipment</td>
<td>392,941</td>
<td>365,112</td>
</tr>
<tr>
<td>Deferred tax liabilities related to PP&amp;E</td>
<td>25,954</td>
<td>7,417</td>
</tr>
<tr>
<td>Statutory tax rate</td>
<td>38.5%</td>
<td></td>
</tr>
</tbody>
</table>

Indirect statement of cash flows
- Operating activities: addback for depreciation | 56,925 |
- Operating activities: add losses (less gains) from disposal | 0 |
- Investing activities: purchases of PP&E | -92,976 |

A. Calculate the cash received from the disposal property, plant, and equipment (PP&E) for the fiscal year ended February 1, 2003. (It may be helpful to use balance sheet equation entries to reverse engineer the disposal transaction.) [12 points]

B. Estimate the cumulative book-tax timing difference related to PP&E as at February 1, 2003. [3 points]

C. Estimate the amount of depreciation for tax purposes claimed by A&F for the fiscal year ended February 1, 2003. [5 points]
**QUESTION II: Marketable Securities (20 Points)**

A. In the financial statements of A&F, the company reports more than $10 million in marketable securities and zero unrealized gains or losses from marketable securities as at February 1, 2003. Given this information, what is your best estimate of what type of securities A&F holds (debt or equity) and how has the company classified the securities (held-to-maturity, trading, or available-for-sale)? [2 points]

- Held-to-maturity securities are not marked-to-market, resulting in 0 unrealized gains.
- Only debt securities qualify for held-to-maturity classification.

B. Assume that company AAA purchased 1000 shares of ZZZ in 1998 for $50 per share. The company classified these shares as trading securities. Since 1998, ZZZ had paid no dividends. The price of ZZZ shares at the end of each year from 1998 to 1992 are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>$52</td>
<td>$60</td>
<td>$45</td>
<td>$50</td>
<td>$70</td>
</tr>
</tbody>
</table>

In June 2003, AAA sold its entire investment in ZZZ for proceeds (before-tax) of $80,000.

1. Provide the balance sheet equation entries required at the end of 2001 and 2002, and for the sale in 2003. Include the effect of income taxes at a rate of 35%. For simplicity, you may assume that taxes due on any realized gains are paid immediately with cash. (Note: although not required, it may be helpful to compute the balance of your accounts at the beginning of 2001.) [12 points] (15 points available, 12 max)

<table>
<thead>
<tr>
<th>Brief Description</th>
<th>Cash</th>
<th>MS</th>
<th>MS_{ADJ}</th>
<th>DTA</th>
<th>DTL</th>
<th>R/E</th>
<th>R/E Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>BB 2001</td>
<td>50,000</td>
<td>$5,000</td>
<td>1,750</td>
<td></td>
<td></td>
<td></td>
<td>Unrealized gain</td>
</tr>
<tr>
<td>2001 Y/E</td>
<td>5,000</td>
<td>–1750</td>
<td>–1,750</td>
<td>5,000</td>
<td></td>
<td></td>
<td>Tax expense</td>
</tr>
<tr>
<td>2002 Y/E</td>
<td>20,000</td>
<td></td>
<td>20,000</td>
<td></td>
<td></td>
<td></td>
<td>Unrealized gain</td>
</tr>
<tr>
<td>2003 Sale</td>
<td>80,000</td>
<td>–50,000</td>
<td>–20,000</td>
<td>7,000</td>
<td>–7,000</td>
<td>10,000</td>
<td>Realized gain</td>
</tr>
<tr>
<td>Tax pmnt</td>
<td>–10,500</td>
<td></td>
<td></td>
<td>–7,000</td>
<td>–3500</td>
<td></td>
<td>Tax expense</td>
</tr>
</tbody>
</table>

2. Identify the effect of the sale of ZZZ shares on AAA’s indirect statement of cash flows (SCF) for 2003. Please note (i) the nature of the cash flow, (ii) the amount, and (iii) in which of the three section of the SCF the item appears. One part of this has been completed for you. [6 points] (9 points available, 6 max)

Operating activities:
- Net income (reflects gain after-tax) +6,500
- Subtract: gain on sale of securities –10,000
- Add: decrease in DTL –7,000
- Proceeds from sale of securities –10,500
- Proceeds from sale of securities 80,000
  (operating activity because classified as trading)
QUESTION III: PRESENT VALUES AND LONG-TERM DEBT (20 POINTS)

A. Assume that you are just graduating and you have $50,000 outstanding in student loans. The loan bears interest at 8%. If you repay $5,841.47 per year, how many years will it take you to repay the entire loan? [3 points]

\[
PV = \text{Payment} \times PVFA_{n,8\%}
\]

\[
PVFA_{n,8\%} = \frac{PV}{\text{Payment}} = \frac{50,000}{5841.47} = 8.5595
\]

\[n = 15 \text{ years } [n \text{ can be found by looking for } 8.5595 \text{ in tables or solving formula]}

B. On January 1, 1991, Company BBB issued zero coupon bonds due on December 31, 2010. The maturity value of the bonds is $20 million and the company received proceeds of $5,168,380 at the time of issuance.

1. How much was the effective interest rate on these bonds? [3 points]

\[
FV_n = PV_0 \times (1+r)^n
\]

\[
(1+r)^{20} = \frac{FV_{20}}{PV_0}
\]

\[
(1+r)^{20} = \frac{20,000,000}{5,168,380} = 3.8697
\]

\[r = 3.8698^{1/20} = 7\% \text{ or look at PV table to find } 3.8697
\]

2. Record the balance sheet equation entries for the year ended December 31, 1991. (If you cannot solve part 1, make an assumption regarding the interest rate and state it.) [5 points]

<table>
<thead>
<tr>
<th>Cash</th>
<th>Bond Payable</th>
<th>−Discount on Bond Payable</th>
<th>R/E</th>
<th>R/E Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bond issuance</td>
<td>5,168,380</td>
<td>20,000,000</td>
<td>14,831,620</td>
<td></td>
</tr>
<tr>
<td>Year end adjustment</td>
<td></td>
<td>−361,787</td>
<td>−361,787</td>
<td>Int. expense</td>
</tr>
</tbody>
</table>

3. Identify the effect of the bonds on the indirect statement of cash flows (SCF) for the year ended December 31, 1991. Please note (i) the nature of the cash flow, (ii) the amount, and (iii) in which of the three section of the SCF the item appears. Ignore the effect of income taxes. [6 points] (9 points available, 6 max)

Operating activities:
Net income (effect of interest expense) \(-361,787\)
Reduction in discount on zero-coupon bonds \(+361,787\)  

Financing acitivities:
Proceeds from bond issuance \(5,168,380\)

4. On December 31, 2002, BBB’s zero coupon bonds were selling for $676.84 per 1000. How much was the market interest rate on these bonds on December 31, 2002? [3 points]

⇒ It is 8 years to maturity, so

\[PV_0 = FV_8 \times PVF_{8,r} \quad \text{or} \quad FV_8 = PV_0 \times FVF_{8,r}\]

\[PV_0 / FV_8 = PVF_{8,r}\]

\[676.84/1000 = PVF_{8,r}\]

\[r = 5\% \text{ look up in table or solve } 0.67684 = (1+r)^{-8}\]
**QUESTION IV: LEASES (20 POINTS)**

On December 31, 2002, Company CCC entered into its only lease for a “Googleplexer.” On the company’s December 31, 2002 financial statements, you find the following information:

**Note 1: Accounting Policies**
The company depreciates property, plant, and equipment using the straight-line method.

**Note 5: Leases**

<table>
<thead>
<tr>
<th>Year</th>
<th>Capital Leases (in $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>300,000</td>
</tr>
<tr>
<td>2004</td>
<td>300,000</td>
</tr>
<tr>
<td>2005</td>
<td>300,000</td>
</tr>
<tr>
<td>2006</td>
<td>300,000</td>
</tr>
<tr>
<td>2007</td>
<td>300,000</td>
</tr>
<tr>
<td>2008 and later</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total minimum lease payments</strong></td>
<td>$1,500,000</td>
</tr>
<tr>
<td><strong>Portion representing interest</strong></td>
<td>333,105</td>
</tr>
<tr>
<td><strong>Net</strong></td>
<td>1,166,895</td>
</tr>
<tr>
<td><strong>Current portion</strong></td>
<td>194,979</td>
</tr>
<tr>
<td><strong>Long-term lease obligation</strong></td>
<td>$971,916</td>
</tr>
</tbody>
</table>

A. How much was recorded in property, plant, and equipment for this lease? [2 points]

⇒ PP&E = lease obligation at start of lease
   = 1,166,895

B. How much is the effective interest rate on this lease? [3 points]

⇒ Method 1
   Interest expense = lease obligation at beg. of year × r
   $300,000 – 194,979 = 1,166,895 × r
   r = 105,021 / 1,166,895 = 9%

⇒ Method 2
   \[ \text{PV(LP)} = \text{Payments} \times \text{PVFA}_{5,r} \]
   \[ \text{PVFA}_{5,r} = \frac{\text{PV(LP)}}{\text{Payments}} \]
   \[ = \frac{1,166,895}{300,000} \]
   = 3.88965 ⇒ r = 9%

C. Compute the total amount of expenses to be recorded on this lease for the 2003 fiscal year. (Note: if you cannot solve parts A or B, make an assumption(s) and state it.) [5 points]

⇒ Depreciation expense = 1,166,895 / 5 = 233,379
⇒ Interest expense = 1,166,895 × 9% = 105,021
Total = 338,400
D. If this lease had been considered an operating lease, how much expense would be recorded in 2003? [2 points]

⇒ Operating lease expense = lease payment = $300,000

E. Assume that there will be neither a transfer of title nor a bargain purchase option on this lease. Also assume that the useful life of the Googolplexer is 7 years. How much is the maximum market value of the Googolplexer at December 31, 2002? [3 points]

⇒ Since there is no transfer of title, no bargain purchase, and lease term = 5 years < 75% of useful life, the lease would be considered a capital lease if the present value of lease payments is at least 90% of market value:

\[ PV(LP) \geq 90\% \text{ of market value} \]
\[ 1,166,895 \geq 90\% \times MV \]
\[ 1,296,550 \geq MV \]

F. Maintain the assumptions in Part E and also assume that the purchase price of the Googolplexer at December 31, 2002 was $1,232,000. What interest rate assumption would allow CCC to treat the above lease as an operating lease? [5 points]

⇒ For operating lease treatment, need to have present value of lease payments less than 90% of market value.

\[ PV(LP) < 90\% \times MV \]
\[ 300,000 \times PVFA_{5,r} < 90\% \times 1,232,000 \]
\[ PVFA_{5,r} < 1,108,800 / 300,000 \]
\[ PVFA_{5,r} < 3.696 \]
\[ r \geq 11\% \] (find in table or solve by formula)