**Chapter 10**

**EXERCISES**

**Exercise 10-1 (15 minutes)**

**1. Semiannual cash interest payment = $3,400,000 x 9% x 1/2 = $153,000**

**2. Journal entries**

|  |  |  |  |
| --- | --- | --- | --- |
| **(a)** |  |  |  |
| **Jan. 1** | **Cash** | **3,400,000** |  |
|  | **Bonds Payable** |  | **3,400,000** |
|  | ***Sold bonds at par.*** |  |  |
|  |  |  |  |
| **(b)** |  |  |  |
| **June 30** | **Bond Interest Expense** | **153,000** |  |
|  | **Cash** |  | **153,000** |
|  | ***Paid semiannual interest on bonds.*** |  |  |
|  |  |  |  |
| **(c)** |  |  |  |
| **Dec. 31** | **Bond Interest Expense** | **153,000** |  |
|  | **Cash** |  | **153,000** |
|  | ***Paid semiannual interest on bonds.*** |  |  |

**3*.***

|  |  |  |  |
| --- | --- | --- | --- |
| **(a)** |  |  |  |
| **Jan. 1** | Cash\* | **3,332,000** |  |
|  | **Discount on Bonds Payable** | **68,000** |  |
|  | **Bonds Payable** |  | **3,400,000** |
|  | ***Sold bonds at 98. \*($3,400,000 x 0.98)*** |  |  |
|  |  |  |  |
| **(b)** |  |  |  |
| **Jan. 1** | Cash\* | **3,468,000** |  |
|  | **Premium on Bonds Payable** |  | **68,000** |
|  | **Bonds Payable** |  | **3,400,000** |
|  | ***Sold bonds at 102. \*($3,400,000 x 1.02)*** |  |  |

Exercise 10-2 (30 minutes)

**1. Discount = Par value - Issue price = $180,000 - $170,862 = $9,138**

2. Total bond interest expense over the life of the bonds

|  |  |  |  |
| --- | --- | --- | --- |
| **Amount repaid** | |  | |
| **Six payments of $7,200\*** | | **$ 43,200** | |
| **Par value at maturity** | | **180,000** | |
| **Total repaid** | | **223,200** | |
| **Less amount borrowed** | | **(170,862)** | | | |
| **Total bond interest expense** | | **$ 52,338** | |
| ***\*180,000 x 0.08 x ½ = $7,200*** | |  | |

or:

|  |  |  |
| --- | --- | --- |
| **Six payments of $7,200** | | **$ 43,200** |
| **Plus discount** | | **9,138** |
| **Total bond interest expense** | **$ 52,338** | |

**3. Straight-line amortization table ($9,138/6 = $1,523)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Semiannual**  **Period-End** | **Unamortized Discount** | **Carrying**  **Value** |
| **(0)** | **1/01/2018** | **$9,138** | **$170,862** |
| **(1)** | **6/30/2018** | **7,615** | **172,385** |
| **(2)** | **12/31/2018** | **6,092** | **173,908** |
| **(3)** | **6/30/2019** | **4,569** | **175,431** |
| **(4)** | **12/31/2019** | **3,046** | **176,954** |
| **(5)** | **6/30/2020** | **1,523** | **178,477** |
| **(6)** | **12/31/2020** | **0** | **180,000** |

**Exercise 10-3 (25 minutes)**

**1. Semiannual cash interest payment = $800,000 x 6% x ½ year = $24,000**

**2. Number of payments = 10 years x 2 per year = 20 semiannual payments**

**3. The 6% contract rate is less than the 8% market rate; therefore, the bonds are issued at a discount.**

**4. Estimation of the market price at the issue date**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cash Flow | **Table** | | **Table Value\*** | | **Amount** | | **Present Value** | |
| Par (maturity) value | | | **B.1** | | **0.4564** | | **$800,000** | | **$365,120** | |
| **Interest (annuity)** | | | **B.3** | | **13.5903** | | **24,000** | | **326,167** | |
| **Price of bonds** | | |  | |  | |  | | **$691,287** | |

**\* Table values are based on a discount rate of 4% (half the annual market rate) and 20 periods (semiannual payments).**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **5.** | **Cash** | **691,287** | |  |
|  | **Discount on Bonds Payable** | **108,713** | |  |
|  | **Bonds Payable** |  | | **800,000** |
|  | ***Sold bonds at a discount on the stated issue date.*** | |  | |

**Exercise 10-4 (20 minutes)**

**2018**

|  |  |  |  |
| --- | --- | --- | --- |
| **(a)** |  |  |  |
| **Dec. 31** | **Cash** | **186,534** |  |
|  | **Discount on Bonds Payable** | **13,466** |  |
|  | **Bonds Payable** |  | **200,000** |
|  | ***Sold bonds at discount.*** |  |  |
| **2019** |  |  |  |
| **(b)** |  |  |  |
| **June 30** | **Bond Interest Expense** | **7,684** |  |
|  | **Discount on Bonds Payable\*\*** |  | **1,684** |
|  | **Cash\*** |  | **6,000** |
|  | ***Paid semiannual interest and record amor-tization. \*$200,000 x6% x1/2 \*\*13,466 - $11,782*** |  |  |
| **(c)** |  |  |  |
| **Dec. 31** | **Bond Interest Expense** | **7,684** |  |
|  | **Discount on Bonds Payable\*\*** |  | **1,684** |
|  | **Cash\*** |  | **6,000** |
|  | ***Paid semiannual interest and record amor-tization. \*$200,000 x6% x1/2 \*\*$11,782 - $10,098*** |  |  |

**Exercise 10-5 (35 minutes)**

**2018**

|  |  |  |  |
| --- | --- | --- | --- |
| **(a)** |  |  |  |
| **Dec. 31** | **Cash** | **188,000** |  |
|  | **Discount on Bonds Payable** | **12,000** |  |
|  | **Bonds Payable** |  | **200,000** |
|  | ***Sold bonds at discount.*** |  |  |
|  |  |  |  |
| **(b)** |  |  |  |
| **2019** |  |  |  |
| **June 30** | **Bond Interest Expense** | **8,000** |  |
|  | **Discount on Bonds Payable\*** |  | **3,000** |
|  | **Cash\*\*** |  | **5,000** |
|  | ***Paid semiannual interest and record amor-tization. \*$12,000-$9,000 \*\*$200,000 x 5% x ½*** |  |  |
|  |  |  |  |
| **Dec. 31** | **Bond Interest Expense** | **8,000** |  |
|  | **Discount on Bonds Payable\*** |  | **3,000** |
|  | **Cash\*\*** |  | **5,000** |
|  | ***Paid semiannual interest and record amor-tization. \*$9,000- $6,000 \*\*$200,000 x 5% x ½*** |  |  |
|  |  |  |  |
| **2020** |  |  |  |
| **June 30** | **Bond Interest Expense** | **8,000** |  |
|  | **Discount on Bonds Payable\*** |  | **3,000** |
|  | **Cash\*\*** |  | **5,000** |
|  | ***Paid semiannual interest and record amor-tization. \*$6,000-$3,000 \*\*$200,000 x 5% x ½*** |  |  |
|  |  |  |  |
| **Dec. 31** | **Bond Interest Expense** | **8,000** |  |
|  | **Discount on Bonds Payable\*** |  | **3,000** |
|  | **Cash\*\*** |  | **5,000** |
|  | ***Paid semiannual interest and record amor-tization. \*$3,000 - $0 \*\*$200,000 x 5% x ½*** |  |  |
|  |  |  |  |
| **(c)** |  |  |  |
| **Dec. 31** | **Bonds Payable** | **200,000** |  |
|  | **Cash** |  | **200,000** |
|  | ***Record maturity and payment of bonds.*** |  |  |

**Exercise 10-6 (20 minutes)**

**2017**

|  |  |  |  |
| --- | --- | --- | --- |
| **(a)** |  |  |  |
| **Dec. 31** | **Cash** | **216,222** |  |
|  | **Premium on Bonds Payable** |  | **16,222** |
|  | **Bonds Payable** |  | **200,000** |
|  | ***Sold bonds at premium.*** |  |  |
| **2018** |  |  |  |
| **(b)** |  |  |  |
| **June 30** | **Bond Interest Expense** | **8,378** |  |
|  | **Premium on Bonds Payable\*** | **1,622** |  |
|  | **Cash\*\*** |  | **10,000** |
|  | ***Paid semiannual interest and record amor-tization. \*$16,222- $14,600 \*\*$200,000 x 10% x ½*** |  |  |
| **(c)** |  |  |  |
| **Dec. 31** | **Bond Interest Expense** | **8,378** |  |
|  | **Premium on Bonds Payable\*** | **1,622** |  |
|  | **Cash\*\*** |  | **10,000** |
|  | ***Paid semiannual interest and record amor-tization. \*$14,600-$12,978 \*\*$200,000 x 10% x ½*** |  |  |

Exercise 10-7 (30 minutes)

**1. Premium = Issue price - Par value = $409,850 - $400,000 = $9,850**

**2. Total bond interest expense over the life of the bonds**

|  |  |  |
| --- | --- | --- |
| **Amount repaid** | |  |
| **Six payments of $26,000\*** | | **$156,000** |
| **Par value at maturity** | | **400,000** |
| **Total repaid** | | **556,000** |
| **Less amount borrowed** | | **(409,850)** | |
| **Total bond interest expense** | **$146,150** |
| ***\*$400,000 x 0.13 x ½ = $26,000*** |  |

**or**

|  |  |  |
| --- | --- | --- |
| **Six payments of $26,000** | | **$156,000** |
| **Less premium** | | **(9,850)** | |
| **Total bond interest expense** | **$146,150** |

**3. Straight-line amortization table ($9,850/6 = $1,642)**

|  |  |  |
| --- | --- | --- |
| **Semiannual**  **Interest Period-End** | **Unamortized**  **Premium** | **Carrying**  **Value** |
| **1/01/2018** | **$9,850** | **$409,850** |
| **6/30/2018** | **8,208** | **408,208** |
| **12/31/2018** | **6,566** | **406,566** |
| **6/30/2019** | **4,924** | **404,924** |
| **12/31/2019** | **3,282** | **403,282** |
| **6/30/2020** | **1,640\*** | **401,640** |
| **12/31/2020** | **0** | **400,000** |

\*Adjusted for rounding.

Exercise 10-8 (25 minutes)

**1. Semiannual cash interest payment = $150,000 x 10% x ½ year = $7,500**

**2. Number of payments = 5 years x 2 per year = 10 semiannual payments**

**3. The 10% contract rate is greater than the 8% market rate; therefore, the bonds are issued at a premium.**

**4. Estimation of the market price at the issue date**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cash Flow | **Table** | | **Table Value\*** | | **Amount** | | **Present Value** | |
| Par (maturity) value | | | **B.1** | | **0.6756** | | **$150,000** | | **$101,340** |
| **Interest (annuity)** | | | **B.3** | | **8.1109** | | **7,500** | | **60,832** |
| **Price of bonds** | | |  | |  | |  | | **$162,172** |

**\* Table values are based on a discount rate of 4% (half the annual market rate) and 10 periods (semiannual payments).**

|  |  |  |  |
| --- | --- | --- | --- |
| **5.** | **Cash** | **162,172** |  |
|  | **Premium on Bonds Payable** |  | **12,172** |
|  | **Bonds Payable** |  | **150,000** |
|  | ***Sold bonds at a premium on the stated issue date.*** | |  |

Exercise 10-9 (20 minutes)

1. Cash proceeds from sale of bonds at issuance

**$700,000 x 97.75% = $684,250**

2. Discount at issuance

|  |  |  |
| --- | --- | --- |
| Par value | | **$700,000** |
| **Cash issue price (from part *1*)** | | **(684,250)** | |
| **Discount at issuance** | **$ 15,750** |

3. Total amortization for first 6 years

**The first six years (from 1/1/2018 to 12/31/2023) equals 40% of the bonds’ 15-year life. Therefore, the total amortization equals 40% of the total discount (since straight-line amortization is being used), which is $15,750 x 40%, or $6,300.**

4. Carrying value of the bonds at 12/31/2023

|  |  |  |
| --- | --- | --- |
| **Discount at issuance (from part *2*)** | | **$ 15,750** |
| **Less amortization (from part *3*)** | | **(6,300)** | |
| **Remaining discount** | **$ 9,450** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Entire Group** | | **Retired 20%** | | |
| Par value | | | | **$700,000** | **$140,000** |
| **Remaining discount** | | | **(9,450)** | **(1,890)** | |
| **Carrying value** | | | **$690,550** | **$138,110** | |

5. Cash purchase price

**($700,000 x 20%) x 104.5% = $146,300**

6. Loss on retirement

|  |  |  |
| --- | --- | --- |
| **Cash paid (from part *5*)** | | **$ 146,300** |
| **Carrying value (from part *4*)** | | **(138,110)** | |
| Loss on retirement | **$ 8,190** |

7. Journal entry at retirement for 20% of bonds

**2024**

|  |  |  |  |
| --- | --- | --- | --- |
| **Jan. 1** | **Bonds Payable** | **140,000** |  |
|  | **Loss on Retirement of Bonds Payable** | **8,190** |  |
|  | **Discount on Bonds Payable** |  | **1,890** |
|  | **Cash** |  | **146,300** |
|  | ***Record the retirement of bonds.*** |  |  |

**Exercise 10-10 (20 minutes)**

**Background (given): Amount of each payment = Initial note balance / Table B.3 PV factor**

**= $100,000 / 3.3872 = $29,523**

**Amortization table for the loan**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  | | **Payments** | | | | | | | | |  |
| **Period Ending**  **Date** | | **(A)**  **Beginning Balance [Prior (E)]** | **(B)**  **Debit Interest Expense [7% x (A)]** | | **+** | | **(C)**  **Debit Notes Payable [(D) - (B)]** | | **=** | | **(D)**  **Credit**  **Cash**  **[computed]** | | **(E)**  **Ending Balance [(A) - (C)]** |
| **2018** | | **$100,000** | **$ 7,000** | |  | | **$ 22,523** | |  | | **$ 29,523** | | **$77,477** |
| **2019** | | **77,477** | **5,423** | |  | | **24,100** | |  | **29,523** | | | **53,377** |
| **2020** | | **53,377** | **3,736** | |  | | | **25,787** |  | | | **29,523** | **27,590** |
| **2021** | | **27,590** | **1,933\*** | | |  | | **27,590** |  | | | **29,523** | **0** |
|  |  | **$18,092** | |  | | | **$100,000** |  | | | **$118,092** |  |

**\*Adjusted for rounding.**

**Exercise 10-11 (20 minutes)**

**2018**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Jan. 1** | **Cash** | | **100,000** |  |
|  | **Notes Payable** | |  | **100,000** |
|  | ***Borrowed $100,000 by signing a 7%   installment note.*** | |  |  |
|  |  | |  |  |
| **2018** |  | |  |  |
| **Dec. 31** | **Interest Expense** | | **7,000** |  |
|  | **Notes Payable** | | **22,523** |  |
|  | **Cash** | |  | **29,523** |
|  | ***Record first installment payment.*** | |  |  |
|  |  | |  |  |
| **2019** |  | |  |  |
| **Dec. 31** | **Interest Expense** | | **5,423** |  |
|  | **Notes Payable** | | **24,100** |  |
|  | **Cash** | |  | **29,523** |
|  | ***Record second installment payment.*** | |  |  |
|  |  | |  |  |
| **2020** |  | |  |  |
| **Dec. 31** | **Interest Expense** | | **3,736** |  |
|  | **Notes Payable** | | **25,787** |  |
|  | **Cash** | |  | **29,523** |
|  | ***Record third installment payment.*** | |  |  |
|  |  | |  |  |
| **2021** |  | |  |  |
| **Dec. 31** | **Interest Expense** | | **1,933** |  |
|  | **Notes Payable** | | **27,590** |  |
|  | **Cash** | |  | **29,523** |
|  | ***Record fourth installment payment.*** |  | |  |

**Exercise 10-12 (15 minutes)**

**1a. Current debt-to-equity ratio = $220,000 / $400,000\* = 0.55**

***\*Total equity = $620,000 - $220,000 = $400,000***

**1b. Potential debt-to-equity ratio = $720,000\* / $400,000 = 1.80**

***\*Total liabilities = $220,000 + $500,000 = $720,000***

**2. Montclair’s risk will increase because it will have more debt. That debt (plus interest) must be repaid even if the project does not work out as planned and provide a sufficient profit. However, if the project does provide adequate returns, Montclair may be better off in the long run by borrowing the funds.**

**Exercise 10-13B (30 minutes)**

**1. Discount = Par value - Issue price = $500,000 - $463,140 = $36,860**

2. Total bond interest expense over the life of the bonds

|  |  |  |
| --- | --- | --- |
| **Amount repaid** | |  |
| **Six payments of $22,500\*** | | **$135,000** |
| **Par value at maturity** | | **500,000** |
| **Total repaid** | | **635,000** |
| **Less amount borrowed** | | **(463,140)** | |
| **Total bond interest expense** | **$171,860** |
| ***\*$500,000 x 0.09 x ½ = $22,500*** |  |

**or**

|  |  |  |
| --- | --- | --- |
| **Six payments of $22,500** | | **$135,000** |
| **Plus discount** | | **36,860** |
| **Total bond interest expense** | **$171,860** |

3. Effective interest amortization table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Semiannual**  **Interest Period-End** | **(A)**  **Cash Interest Paid**  **[4.5% x $500,000]** | **(B)**  **Bond Interest Expense**  **[6% x Prior (E)]** | **(C)**  **Discount Amortization**  **[(B) - (A)]** | **(D)**  **Unamortized**  **Discount**  **[Prior (D) - (C)]** | **(E)**  **Carrying**  **Value**  **[$500,000 - (D)]** |
| **1/01/2018** |  |  |  | **$36,860** | **$463,140** |
| **6/30/2018** | **$ 22,500** | **$ 27,788** | **$ 5,288** | **31,572** | **468,428** |
| **12/31/2018** | **22,500** | **28,106** | **5,606** | **25,966** | **474,034** |
| **6/30/2019** | **22,500** | **28,442** | **5,942** | **20,024** | **479,976** |
| **12/31/2019** | **22,500** | **28,799** | **6,299** | **13,725** | **486,275** |
| **6/30/2020** | **22,500** | **29,176** | **6,676** | **7,049** | **492,951** |
| **12/31/2020** | **22,500** | **29,549 \*** | **7,049** | **0** | **500,000** |
|  | **$135,000** | **$171,860** | **$36,860** |  |  |

**\*Adjusted for rounding.**

Exercise 10-14B (30 minutes)

**1. Premium = Issue price - Par value = $409,850 - $400,000 = $9,850**

**2. Total bond interest expense over the life of the bonds**

|  |  |  |
| --- | --- | --- |
| **Amount repaid** | |  |
| **Six payments of $26,000\*** | | **$ 156,000** |
| **Par value at maturity** | | **400,000** |
| **Total repaid** | | **556,000** |
| **Less amount borrowed** | | **(409,850)** | |
| **Total bond interest expense** | **$ 146,150** |
| ***\*$400,000 x 0.13 x ½ = $26,000*** |  |

**or**

|  |  |  |
| --- | --- | --- |
| **Six payments of $26,000** | | **$ 156,000** |
| **Less premium** | | **(9,850)** | |
| **Total bond interest expense** | **$ 146,150** |

**3. Effective interest amortization table**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Semiannual**  **Interest Period-End** | | **(A)**  **Cash Interest Paid**  **[6.5% x $400,000]** | **(B)**  **Bond Interest Expense**  **[6% x Prior (E)]** | **(C)**  **Premium Amortization**  **[(A) - (B)]** | **(D)**  **Unamortized**  **Premium**  **[Prior (D) - (C)]** | **(E)**  **Carrying**  **Value**  **[400,000 + (D)]** | | |
| **1/01/2018** |  |  |  | **$9,850** | | **$409,850** |
| **6/30/2018** | **$ 26,000** | **$ 24,591** | **$1,409** | **8,441** | | **408,441** |
| **12/31/2018** | **26,000** | **24,506** | **1,494** | **6,947** | | **406,947** |
| **6/30/2019** | **26,000** | **24,417** | **1,583** | **5,364** | | **405,364** |
| **12/31/2019** | **26,000** | **24,322** | **1,678** | **3,686** | | **403,686** |
| **6/30/2020** | **26,000** | **24,221** | **1,779** | **1,907** | | **401,907** |
| **12/31/2020** | **26,000** | **24,093\*** | **1,907** | **0** | | **400,000** |
|  | **$156,000** | **$146,150** | **$9,850** |  | |  |

**\*Adjusted for rounding.**

**Exercise 10-15 (40 minutes)**

1. Straight-line amortization table ([$100,000-$95,952]/8 = $506)

|  |  |  |
| --- | --- | --- |
| Semiannual **Period-End** | **Unamortized Discount †** | **Carrying**  **Value** |
| **1/01/2018(issuance)** | **$4,048** | **$95,952** |
| **6/30/2018** | **3,542** | **96,458** |
| **12/31/2018** | **3,036** | **96,964** |
| **6/30/2019** | **2,530** | **97,470** |
| **12/31/2019** | **2,024** | **97,976** |
| **6/30/2020** | **1,518** | **98,482** |
| **12/31/2020** | **1,012** | **98,988** |
| **6/30/2021** | **506** | **99,494** |
| **12/31/2021** | **0** | **100,000** |

**† Supporting computations**

|  |  |  |
| --- | --- | --- |
| **Eight payments of $3,500\*\*** | | **$ 28,000** |
| **Par value at maturity** | | **100,000** |
| **Total repaid** | | **128,000** |
| **Less amount borrowed** | | **(95,952)** | | |
| **Total bond interest expense** | **$ 32,048** | |
| ***\*\*$100,000 x 0.07 x ½ = $3,500*** |  | |

**or**

|  |  |  |
| --- | --- | --- |
| **Eight payments of $3,500** | | **$ 28,000** |
| **Plus discount** | | **4,048** |
| **Total bond interest expense** | **$ 32,048** | |

**Semiannual straight-line interest expense = $32,048 / 8 = $4,006**

**Semiannual bond discount amortization = $4,048 / 8 = $506**

**Exercise 10-15 (*Concluded*)**

**2.**

**2018**

|  |  |  |  |
| --- | --- | --- | --- |
| **June 30** | **Bond Interest Expense** | **4,006** |  |
|  | **Discount on Bonds Payable** |  | **506** |
|  | **Cash** |  | **3,500** |
|  | ***Record 6 months’ interest and discount amortization.*** |  |  |
|  |  |  |  |
| **Dec. 31** | **Bond Interest Expense** | **4,006** |  |
|  | **Discount on Bonds Payable** |  | **506** |
|  | **Cash** |  | **3,500** |
|  | ***Record 6 months’ interest and discount amortization.*** |  |  |
| **3.** |  |  |  |
| **2021** |  |  |  |
| **Dec. 31** | **Bonds Payable** | **100,000** |  |
|  | **Cash** |  | **100,000** |
|  | ***Paid par value at maturity.***  ***(Assume interest was already recorded.)*** |  |  |

**Exercise 10-16 (20 minutes)**

**2018**

|  |  |  |  |
| --- | --- | --- | --- |
| **Jan. 1** | **Cash** | **3,400,000** |  |
|  | **Bonds Payable** |  | **3,400,000** |
|  | ***Sold bonds at par.*** |  |  |
|  |  |  |  |
| **June 30** | **Bond Interest Expense** | **153,000** |  |
|  | **Cash** |  | **153,000** |
|  | ***Paid semiannual interest. $3,400,000 x 0.09 x ½*** |  |  |
|  |  |  |  |
| **Dec. 31** | **Bond Interest Expense** | **153,000** |  |
|  | **Cash** |  | **153,000** |
|  | ***Paid semiannual interest. $3,400,000 x 0.09 x ½*** |  |  |
| **2021** |  |  |  |
| **Dec. 31** | **Bonds Payable** | **3,400,000** |  |
|  | **Cash** |  | **3,400,000** |
|  | ***Paid par value at maturity.***  ***(Assume interest was already recorded.)*** |  |  |

**Exercise 10-17C (10 minutes)**

**1. Operating lease 2. Finance lease 3. Finance lease**

**Exercise 10-18C (20 minutes)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **1.** | **Jan. 1** | **Right-of-Use Asset** | **41,000** |  |
|  |  | **Lease Liability** |  | **41,000** |
|  |  | ***Record right-of-use lease asset.*** |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **2.** | **Jan. 1** | **Lease Liability** | **10,000** |  |
|  |  | **Cash** |  | **10,000** |
|  |  | ***Record beginning-year lease payment.*** |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **3.** | **Dec. 31** | **Amortization Expense—Right-of-Use Asset** | **8,200** |  |
|  |  | **Accum. Amortization—Right-of-Use Asset** |  | **8,200** |
|  |  | ***Record amortization ($41,000 / 5 years).*** |  |  |

**Exercise 10-19C (15 minutes)**

***[Note: 12% / 12 months = 1% per month as the relevant interest rate.]***

***Option 1*: $1,750 per month for 25 months = $1,750 x 22.0232 = $38,541**

***Option 2*: $1,500 per month for 25 months + $5,000 =**

**($1,500 x 22.0232) + $5,000 = $38,035**

***Option 3*: = $38,500**

***Analysis*: Option 2 has the lowest present value at $38,035 and, thus, is the best lease deal for the customer.**

**Exercise 10-20 (20 minutes)**

**(amounts in euros millions)**

|  |  |  |  |
| --- | --- | --- | --- |
| **1.** | **Cash** | **1,670** |  |
|  | **Discount on Loans and Borrowings** | **12** |  |
|  | **Loans and Borrowings** |  | **1,682** |
|  | ***Issued liabilities at discount.*** |  |  |
|  |  |  |  |
| **2.** | **Loans and Borrowings** | **948** |  |
|  | **Premium on Loans and Borrowings** | **24** |  |
|  | **Loss on Loans and Borrowings Retirement** | **29** |  |
|  | **Cash** |  | **1,001** |
|  | ***Retirement of loans and borrowings pre-maturity.*** |  |  |
|  |  |  |  |

**3. Heineken’s Loans and Borrowings carried a premium of €658 as of December 31, 2016. This is computed as its carrying value of €10,954 less its par value of €10,296.**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |

**4. The contract rate was higher than the market rate at issuance. This is implied from the higher carrying value of its loans and borrowings relative to the lower par value.**

**(Recall: Contract rate > Market rate 🡪 Premium)**

**Exercise 10-21 (20 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **1**  **Don’t Expand** | **2**  **Debt Financing** | **3**  **Equity Financing** |
| **Income before interest expense** | **$ 50,000** | **$ 75,000** | **$ 75,000** |
| **Interest expense** | **$ 0** | **$ 6,400** | **$ 0** |
| **Net income** | **$ 50,000** | **$ 68,600** | **$ 75,000** |
| **Equity** | **$200,000** | **$200,000** | **$280,000** |
| **Return on equity** | **25%** | **34.3%** | **26.8%** |