Chapter 15

Long-Term Liabilities

Questions

1. A *note payable* is a promissory note issued to borrow money from a single lender, like a bank or an insurance company. Bonds payable are groups of notes payable issued to multiple investors, called bondholders.

2. a. $9,300 ($10,000 × 0.93)

b. $10,138 ($10,000 × 1.01375)

c. $10,000 ($10,000 × 1.00)

3. a. 3% bonds sold when the market rate is 3%: *Par*

b. 3% bonds sold when the market rate is 4%: *Discount*

c. 3% bonds sold when the market rate is 2%: *Premium*

4. a. Cash XXX

Bonds Payable XXX

To issue bonds payable at par.

b. Interest Expense XXX

Cash XXX

To pay interest expense.

c. Interest Expense XXX

Interest Payable XXX

To accrue interest expense at year-end.

d. Bonds Payable XXX

Cash XXX

To pay bonds at maturity.

5. A Discount on Bonds Payable is a *contra-account* to the Bonds Payable account.

6. a. Cash XXX

Discount on Bonds Payable XXX

Bonds Payable XXX

To issue bonds payable at a discount.

b. Interest Expense XXX

Cash XXX

Discount on Bonds Payable XXX

To pay interest expense and amortize discount.

c. Interest Expense XXX

Interest Payable XXX

Discount on Bonds Payable XXX

To accrue interest expense and amortize discount

at year-end.

d. Bonds Payable XXX

Cash XXX

To pay bonds at maturity.

7. a. Cash XXX

Bonds Payable XXX

Premiums on Bonds Payable XXX

To issue bonds payable at a premium.

b. Interest Expense XXX

Premium on Bonds Payable XXX

Cash XXX

To pay interest expense and amortize premium.

c. Interest Expense XXX

Premium on Bonds Payable XXX

Interest Payable XXX

To accrue interest expense and amortize

premium at year-end.

d. Bonds Payable XXX

Cash XXX

To pay bonds at maturity.

8. For bonds issued at a discount, interest expense will be greater than cash interest paid by the amount of the discount amortized for the period. Remember that the company received less than face value when it issued the bonds. But at maturity, the company must pay the full value back to the bondholders. Thus, a discount increases the company’s interest expense above the amount of cash interest paid each period.

9. *Straight-line* amortization of a bond discount (or premium) divides the discount (premium) into equal amounts, so the same dollar amount of discount (premium) is amortized each period. Under the *effective-interest* method, the amount of interest expense each period is determined by multiplying the previous period’s carrying value of the bonds by the market interest rate that was in effect when the bonds were issued. The effective-interest method maintains a constant interest rate, based on a changing carrying value, and the dollar amount of interest expense changes each period. The dollar amount of stated (contract) interest to pay is the same each period. The amount of discount (premium) to amortize each period is the difference between the interest expense and the stated interest that must be paid. This is also easy to calculate using a financial calculator.

10. Pay the $202,500 ($200,000 ×1.0125) market price, which is less than the call price of $205,000 ($200,000 × 1.025).

11. Convertible bonds are attractive to investors because they combine the safety of assured interest revenue and receipt of principal on the bonds with the opportunity for large gains on the shares. They are popular with issuers because they usually bear lower interest rates than regular bonds.

12. The $26 million due in 2021 will be shown as a current liability by Silver Corp. on the 2020 year-end balance sheet as they are due within one year. The balance of $130 million will be shown as a long-term liability.

13. Issuing bonds does not change the corporation’s ownership structure, but issuing shares spreads ownership, control, and income among more shares. Interest expense paid on bonds is tax deductible, but dividend payments on shares are not. To the issuer, bonds are riskier than shares. Bonds increase interest expense and liabilities that must be paid regardless of how the business fares. Dividends are paid at the corporation’s choice. Bonds must be repaid, shares are not repaid.

14. An amortization schedule details each loan payment’s allocation between principal and interest and states the beginning and ending loan balances.

15. A blended mortgage payment is a fixed mortgage payment that contains two parts: the interest portion and the principal repayment portion.

16. In a blended mortgage payment, the interest portion declines and the principal-repayment portion increases over the life of the mortgage, but the total payment stays constant.

17. The lessee of an operating lease debits Rent Expense (or Lease Expense) and credits Cash when making lease payments.

18. To qualify as a *capital* lease, *one* of the following conditions must be present at the start of the lease:

i. There is reasonable assurance that the lessee will obtain ownership of the leased asset at the end of the lease term.

ii. The lease term is of such length that the lessee will obtain almost all of the benefits from the use of the leased asset.

iii. The lessor would recover the original investment and earn a return on that investment from the lease.

In addition, if one applies then the credit risk associated with the lease must be normal and the amounts of any unreimbursable costs to the lessor must be estimable.

Leases that meet none of these criteria are likely *operating* leases.

19. a. Leased Building XXX

Cash XXX

Capital Lease Liability XXX

To acquire a building and make the first lease payment on a capital lease

b. Amortization Expense—Leased Building XXX

Accumulated Amortization—Leased Building XXX

To record amortization on a leased building

c. Interest Expense XXX

Capital Lease Liability XXX

To accrue interest on a lease liability

d. Capital Lease Liability XXX

Cash XXX

To make lease payment

20. **Assets**

Property, plant, and equipment

Leased Equipment XXX

Less: Accumulated amortization XXX XXX

**Liabilities**

Current liabilities

Capital lease liability\* XXX

Long-term liabilities

Capital lease liability XXX

\*Amount due within one year or operating cycle, whichever is longer

Starters

(5 min.) **S15-1**

e Bond indenture h Convertible bonds

g Secured bonds a Bearer bonds

d Debentures c Serial bonds

b Maturity date f Coupon rate

i Contract interest rate j Maturity value

(5-10 min.) **S15-2**

a. $98,500 ($100,000 × 0.985)

b. $102,500 ($100,000 × 1.025)

c. $92,600 ($100,000 × 0.926)

(5 min.) **S15-3**

Quebec Telcom will pay the same amount—$100,000—at maturity for all three bonds; $100,000 is the maturity value of each bond.

(10 min.) **S15-4**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| **2020** | |  |  |  |  |
| a. Jan. | 1 | Cash |  | 500,000 |  |
|  |  | Bonds Payable |  |  | 500,000 |
|  |  | Issued bonds payable. |  |  |  |
|  |  |  |  |  |  |
| b. Jul. | 1 | Interest Expense |  | 8,125 |  |
|  |  | Cash |  |  | 8,125 |
|  |  | Paid semi-annual interest.  ($500,000 × 0.0325 × 1/2) |  |  |  |
|  |  |  |  |  |  |
| **2030** | |  |  |  |  |
| c. Jan. | 1 | Bonds Payable |  | 500,000 |  |
|  |  | Cash |  |  | 500,000 |
|  |  | Paid off bonds payable at maturity. |  |  |  |

(5 min.) **S15-5**

a. $985,000 ($1,000,000 × 0.985)

b. $1,000,000

c. $30,000 ($1,000,000 × 0.06 × 6/12)

(5 min.) **S15-6**

The market interest rate was closer to 8 percent. This is clear from the discount price of 93. A discount occurs only when the market interest rate (say 8 percent) exceeds the stated interest rate on a bond (7 percent).

(10 min.) **S15-7**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| **2020** | |  |  |  |  |
| a. Oct. | 1 | Cash |  | 700,000 |  |
|  |  | Bonds Payable |  |  | 700,000 |
|  |  | Issued bonds payable at Par. |  |  |  |
|  |  |  |  |  |  |
| b. Dec. | 31 | Interest Expense |  | 10,500 |  |
|  |  | Interest Payable |  |  | 10,500 |
|  |  | Accrued interest. ($700,000 × 0.06 × 3/12) |  |  |  |
|  |  |  |  |  |  |
| 2021 | |  |  |  |  |
| c. Apr. | 1 | Interest Payable |  | 10,500 |  |
|  |  | Interest Expense |  | 10,500 |  |
|  |  | Cash |  |  | 21,000 |
|  |  | Paid semi-annual interest.  ($700,000 × 0.06 × 3/12) + accrual from Dec 31 |  |  |  |

(10-15 min.) **S15-8**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| **2020** | |  |  |  |  |
| a. May | 1 | Cash |  | 765,000 |  |
|  |  | Bonds Payable |  |  | 750,000 |
|  |  | Interest Payable |  |  | 15,000 |
|  |  | Issued bonds payable four months after the |  |  |  |
|  |  | date of the bonds. ($750,000 × 0.06 × 4/12) |  |  |  |
|  |  |  |  |  |  |
| b. Jul. | 1 | Interest Payable |  | 15,000 |  |
|  |  | Interest Expense |  | 7,500 |  |
|  |  | Cash |  |  | 22,500 |
|  |  | Paid interest. ($750,000 × 0.06 × 6/12) |  |  |  |

(5-10 min.) **S15-9**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Journal** | | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | | **Debit** | **Credit** |
| **2020** | |  | |  |  |  |
| a. Jan. | 1 | Cash | |  | 475,000 |  |
|  |  | Discount on Bonds Payable | |  | 25,000 |  |
|  |  | Bonds Payable | |  |  | 500,000 |
|  |  | Issued bonds payable at a discount.  Cash = $500,000 × 0.95 | |  |  |  |
|  |  |  | |  |  |  |
| b. Jul. | 1 | Interest Expense | |  | 12,500 |  |
|  |  | Discount on Bonds Payable | |  |  | 2,500 |
|  |  | Cash | |  |  | 10,000 |
|  |  | Paid interest and amortized discount.  Cash = $500,000 × 0.04 × 6/12  Discount = $25,000/10 | |  |  |  |

(10 min.) **S15-10**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Journal** | | | | | | |
| **Date**  **2020** | | **Account Titles and Explanations** | **Post. Ref.** | | **Debit** | **Credit** |
| a. Jan. | 1 | Cash | |  | 424,000 |  |
|  |  | Bonds Payable | |  |  | 400,000 |
|  |  | Premium on Bonds Payable | |  |  | 24,000 |
|  |  | Issued bonds payable at a premium.  Cash = $400,000 × 1.06 | |  |  |  |
|  |  |  | |  |  |  |
| b. Jul. | 1 | Interest Expense | |  | 12,800 |  |
|  |  | Premium on Bonds Payable | |  | 1,200 |  |
|  |  | Cash | |  |  | 14,000 |
|  |  | Paid interest and amortized premium.  Cash = $400,000 × 0.07 × 6/12  Premium = $24,000/20 | |  |  |  |

(15-20 min.) **S15-11**

a. The bonds sold at a discount because the stated interest rate of the bonds is lower than the market interest rate.

b.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | A | B | C | D | E | F |
| 1 | End of Semi-annual Interest Period | Interest Payment  (3% of Maturity Value) | Interest Expense  (3.5% of Preceding F) | Discount Amortization (C – B) | Unamortized Discount Account Balance (Previous E – Current D) | Bond Carrying Amount ($1,500,000 – E) |
| 2 | Mar. 31, 2020 |  |  |  | $106,593 | $1,393,407 |
| 3 | Sep. 30, 2020 | $45,000 | $48,769 | 3,769 | 102,824 | 1,397,176 |
| 4 | Mar. 31, 2021 | 45,000 | 48,901 | 3,901 | 98,923 | 1,401,077 |

Calculator inputs; FV - 1.5 mil., I/Y – 3.5 (7/2), PMT – $45,000 (1.5 mil. X .06/2), N – 20 (10 \* 2), To amortize 2 nd PV (AMORT) P1 and P2 must be 1 for first period.

c.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Journal** | | | | | |
| **Date**  **2020** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| Mar. | 31 | Cash |  | 1,393,407 |  |
|  |  | Discount on Bonds Payable |  | 106,593 |  |
|  |  | Bonds Payable |  |  | 1,500,000 |
|  |  |  |  |  |  |
| Sep. | 30 | Interest Expense |  | 48,769 |  |
|  |  | Discount on Bonds Payable |  |  | 3,769 |
|  |  | Cash |  |  | 45,000 |

d. You would divide the Discount on Bonds Payable ($106,593) by the remaining interest periods (20) and amortize or spread that amount evenly over the remaining term. $5,239.65 rounds up to $5,330. Your September 30 entry and all the subsequent interest entries would be:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sep. | 30 | Interest Expense |  | 50,330 |  |
|  |  | Discount on Bonds Payable |  |  | 5,330 |
|  |  | Cash |  |  | 45,000 |

(15-20 min.) **S15-12**

a. $459,520 ($400,000 × 1.1488) or FV $400,000, I – 3%, PMT 400,000\*.04 N – 20

b.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | A | B | C | D | E | F |
| 1 | End of Semi-annual Interest Period | Interest Payment (4% of Maturity Value) | Interest Expense (3% of Preceding Bond Carrying Amount) | Premium Amortization | Unamortized Premium Account Balance | Bond Carrying Amount ($400,000 + Premium) |
| 2 | May 31, 2020 |  |  |  | $59,520 | $459,520 |
| 3 | Nov. 30, 2020 | $16,000 | $13,786 | $2,214 | 57,306 | 457,306 |
| 4 | May 31, 2021 | 16,000 | 13,719 | 2,281 | 55,025 | 455,025 |
| 5 | Nov. 30 2021 | 16,000 | 13,651 | 2,349 | 52,676 | 452,676 |
| 6 | May 31, 2022 | 16,000 | 13,580 | 2,420 | 50,256 | 450,256 |

c.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| **2020** | |  |  |  |  |
| May | 31 | Cash |  | 459,520 |  |
|  |  | Bonds Payable |  |  | 400,000 |
|  |  | Premium on Bonds Payable |  |  | 59,520 |
|  |  |  |  |  |  |
| **2021** | |  |  |  |  |
| Nov. | 30 | Interest Expense |  | 13,651 |  |
|  |  | Premium on Bonds Payable |  | 2,349 |  |
|  |  | Cash |  |  | 16,000 |

(10-15 min.) **S15-13**

a. Carrying amount = $516,000 [$500,000 + ($20,000 − $2,000\* − $2,000\*)]

\*Premium at issuance = $20,000 ($500,000 × 0.04)

Semi-annual premium amortization = $2,000 ($20,000 ÷ 10)

b. Cash payment = $485,000 ($500,000 × 0.97)

c. Carrying amount of bonds being retired $516,000

Market price ($500,000 × 0.97) 485,000

Gain on retirement of bonds payable $ 31,000

(5-10 min.) **S15-14**

a. Carrying amount = $3,030,000 ($3,000,000 + $30,000)

b. Note no gain or loss allowable on an internal conversion.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| Apr. | 15 | Bonds Payable |  | 3,000,000 |  |
|  |  | Premium on Bonds Payable |  | 30,000 |  |
|  |  | Common Shares |  |  | 3,030,000 |

(5-10 min.) **S15-15**

|  |  |  |
| --- | --- | --- |
|  | **Plan 1** | **Plan 2** |
|  | **Borrow $1,000,000 at 12%** | **Issue $1,000,000 of Common Shares** |
| Net income after interest and income tax, before expansion | $600,000 | $600,000 |
| Project income before interest and income tax | $300,000 | $300,000 |
| Less: Interest expense ($1,000,000 × 0.12) | 120,000 | 0 |
| Project income before income tax | 180,000 | 300,000 |
| Less: Income tax expense (40%) | 72,000 | 120,000 |
| Project net income | $108,000 | $180,000 |
| Total company net income | $708,000 | $780,000 |
| Earnings per share including expansion: |  |  |
| Plan 1 ($708,000 ÷ 200,000 shares) | $ 3.54 |  |
| Plan 2 ($780,000 ÷ 250,000 shares) |  | $ 3.12 |

Plan 1 seems more favourable because the EPS is higher. However, the EPS is only 13 percent higher than Plan 2. The company’s ability to pay the interest on the bonds must also be considered—at 12 percent, the interest payments may limit the company from making other future expenditures as they are needed, so both plans should be considered carefully.

(10-15 min.) **S15-16**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Plan A  Issue $2,000,000 of  8% Bonds Payable | | | Plan B  Issue $2,000,000 of  Common Shares | | | | |
| Net income after interest and income  tax, before expansion …………………. |  | | $600,000 | | |  | | $600,000 |
| Expected income on the new project  before interest and income tax ………... | $400,000 | |  | | | $400,000 | |  |
| Less interest expense ($2,000,000 × 0.8)… | 160,000 | |  | | | 0 | |  |
| Project income before income tax ………... | 240,000 | |  | | | 400,000 | |  |
| Less income tax expense (35%) ……….…. | 84,000 | |  | | | 140,000 | |  |
| Project net income ………………………... |  | | 156,000 | | |  | | 260,000 |
| Total company net income …………….…. |  | | $756,000 | | |  | | $860,000 |
|  |  | |  | | |  | |  |
| Earnings per share including expansion: |  | |  | | |  | |  |
| Plan A ($756,000 ÷ 200,000 shares)… | | $ 3.78 | | |  | |  | |
| Plan B ($860,000 ÷ 300,000 shares)… | |  | | |  | | $ 2.87 | |

Recommendation: To increase earnings per share, the company should borrow the money.

(5-10 min.) **S15-17**

|  |  |  |  |
| --- | --- | --- | --- |
| TALON INC. | | | |
| Balance Sheet (Partial) | | | |
| December 31, 2020 | | | |
| Liabilities |  |  |  |
| Current liabilities |  |  |  |
| Accounts payable |  | $26,000 |  |
| Interest payable |  | 500 |  |
| Current portion of mortgage payable\* |  | 12,000 |  |
| Total current liabilities |  |  | $ 38,500 |
| Long-term liabilities |  |  |  |
| Notes payable, long-term |  | 160,000 |  |
| Mortgage payable |  | 88,000 |  |
| Bonds payable | $100,000 |  |  |
| Less: Discount on bonds payable | 3,000 | 97,000 |  |
| Total long-term liabilities |  |  | 345,000 |
| Total liabilities |  |  | $383,500 |

\*Current portion of mortgage payable is calculated as 12 × $1,000 = $12,000

*(10-15 min.)* S15-18

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Journal** | | | | | |
| **Date**  **2021** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
|  | |  |  |  |  |
| Dec. | 1 | Interest Expense |  | 33.11 |  |
|  |  | Loan payable |  | 68.14 |  |
|  |  | Cash |  |  | 101.25 |

(10-15 min.) **S15-19**

a.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** | **E** | **F** |
| 1 | **Period** | **Beginning Balance** | **Blended Monthly Payment** | **Interest Expense** | **Principal Payment** | **Ending Balance** |
| 2 | Jan. 1, 2020 |  |  |  |  | 60,000.00 |
| 3 | Jan. 31, 2020 | 60,000.00 | 980.00 | 200.00\* | 780.00 | 59,220.00 |
| 4 | Feb. 29, 2020 | 59,220.00 | 980.00 | 197.40 | 782.60 | 58,437.40 |
| 5 | Mar. 31, 2020 | 58,437.40 | 980.00 | 194.79 | 785.21 | 57,652.19 |
| 6 | Apr. 30, 2020 | 57,652.19 | 980.00 | 192.17 | 787.83 | 56,864.36 |
| 7 | May 31, 2020 | 56.864.36 | 980.00 | 189.55 | 790.45 | 56,073.91 |
| 8 | Jun. 30, 2020 | 56,073.91 | 980.00 | 186.91 | 793.09 | 55,280.82 |

\*$60,000 × 4% ÷ 12 months

b. Current portion of the loan to report on the balance sheet: 12 × $980 = $11,760.

(10-15 min.) **S15-20**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date**  **2020** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
|  | |  |  |  |  |
| Jan. | 2 | Lease Deposit |  | 20,000 |  |
|  |  | Cash |  |  | 20,000 |
|  |  |  |  |  |  |
| Jan. | 2 | Lease Expense\* |  | 10,000 |  |
|  |  | Cash |  |  | 10,000 |
|  |  |  |  |  |  |
| Dec. | 31 | Lease Expense\*\* |  | 10,000 |  |
|  |  | Lease Deposit |  |  | 10,000 |
|  |  |  |  |  |  |

\* Or Rent Expense

\*\* $20,000 ÷ 24 × 12 = $10,000

Yes, Cotton Corp. would show the lease commitment in the notes to the financial statements to ensure that the financial statement users are aware of all the company’s commitments and obligations.

(5 min.) **S15-21**

a. Under ASPE, companies have a choice to use straight-line or effective-interest methods for calculations whereas under IFRS only the effective-interest method is allowed for bond premium/discount calculations. In addition, companies following IFRS recalculate the present value of their bonds every year and this is not required under ASPE.

b. When accounting for leases, upcoming IFRS changes will interpret virtually all leases as capital leases.

Exercises

*(5-10 min.)* E15-1

The best type of bonds to issue from WestJet’s perspective would be an unsecured bond or debenture at an optimal interest rate. In case of default or bankruptcy on the part of WestJet, the investor has no security and would have to fall to the bottom on the list to receive any repayment of the face value of the bond.

For an investor, the ideal bond to buy would be a secured or mortgage bond, thereby providing collateral in case of a default. The investor would be guaranteed that the assets could be sold to repay the bondholders if necessary.

*(5-10 min.)* E15-2

a. Price equal to maturity (par) value

b. Discount price

c. Discount price

d. Premium price

(5-10 min.) **E15-3**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| a. Mar. | 31 | Cash |  | 2,000,000 |  |
|  |  | Bonds Payable |  |  | 2,000,000 |
|  |  | To issue 5%, 20-year bonds at par. |  |  |  |
|  |  |  |  |  |  |
| b. Sep. | 30 | Interest Expense |  | 50,000 |  |
|  |  | Cash |  |  | 50,000 |
|  |  | To pay semi-annual interest on bonds.  ($2,000,000 × 0.05 × 6/12) |  |  |  |

(10-15 min.) **E15-4**

Cash received from issuance of bonds payable $7,000,000

Cash received from accrued interest

($7,000,000 × 0.03 × 3/12)        52,500

Total cash received $7,052,500

(10-15 min.) **E15-5**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
|  |  |  |  |  |  |
| Jul. | 31 | Cash |  | 7,052,500 |  |
|  |  | Bonds Payable |  |  | 7,000,000 |
|  |  | Interest Payable |  |  | 52,500 |
|  |  |  |  |  |  |
| Oct. | 31 | Interest Expense |  | 52,500 |  |
|  |  | Interest Payable |  | 52,500 |  |
|  |  | Cash |  |  | 105,000 |
|  |  |  |  |  |  |

(10-15 min.) **E15-6**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| a. Feb. | 1 | Cash |  | 10,000,000 |  |
|  |  | Bonds Payable |  |  | 10,000,000 |
|  |  | To issue 3%, 20-year bonds at par. |  |  |  |
|  |  |  |  |  |  |
| b. Jul. | 31 | Interest Expense |  | 150,000 |  |
|  |  | Cash |  |  | 150,000 |
|  |  | To pay semi-annual interest.  ($10,000,000 × 0.03 × 6/12) |  |  |  |
|  |  |  |  |  |  |
| c. Dec. | 31 | Interest Expense |  | 125,000 |  |
|  |  | Interest Payable |  |  | 125,000 |
|  |  | To accrue five months’ interest on bonds.  ($10,000,000 × 0.03 × 5/12) |  |  |  |

(10-15 min.) **E15-7**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | | |
| **Date** | | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| a. Apr. | 30 | Cash |  | 5,025,000 |  |
|  |  | Bonds Payable |  |  | 5,000,000 |
|  |  | Interest Payable |  |  | 25,000 |
|  |  | To issue 6%, 20-year bonds at par and accrue interest ($5,000,000 × 0.06 × 1/12) |  |  |  |
|  |  |  |  |  |  |
| b. Sep. | 30 | Interest Expense |  | 125,000 |  |
|  |  | Interest Payable |  | 25,000 |  |
|  |  | Cash |  |  | 150,000 |
|  |  | To pay semi-annual interest.  ($5,000,000 × 0.06 × 6/12) |  |  |  |
|  |  |  |  |  |  |
| c. Dec. | 31 | Interest Expense |  | 75,000 |  |
|  |  | Interest Payable |  |  | 75,000 |
|  |  | To accrue three months’ interest on bonds.  ($5,000,000 × 0.06 × 3/12) |  |  |  |

(10-15 min.) **E15-8**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| a. Apr. | 1 | Cash |  | 4,900,000 |  |
|  |  | Bond Discount |  | 100,000 |  |
|  |  | Bonds Payable |  |  | 5,000,000 |
|  |  | Issuance of $5,000,000, 3.5%, 20-year bonds at 98.00. |  |  |  |
|  |  |  |  |  |  |
| b. Sep. | 30 | Interest Expense |  | 90,000 |  |
|  |  | Bond Discount |  |  | 2,500 |
|  |  | Cash |  |  | 87,500 |
|  |  | To pay semi-annual interest ($5,000,000 × 0.035 × 6/12) and amortize bond discount by the straight-line method. ($100,000/40 = $2,500) |  |  |  |
|  |  |  |  |  |  |
| c. Dec. | 31 | Interest Expense |  | 45,000 |  |
|  |  | Bond Discount |  |  | 1,250 |
|  |  | Interest Payable |  |  | 43,750 |
|  |  | To accrue interest payable ($5,000,000 × 0.035 × 3/12) and interest for three months ($2,500 × 3/6). |  |  |  |

(10-15 min.) **E15-9**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| **2020** | |  |  |  |  |
| a. Feb. | 1 | Cash |  | 1,530,000 |  |
|  |  | Bond Premium |  |  | 30,000 |
|  |  | Bonds Payable |  |  | 1,500,000 |
|  |  | Issuance of $1,500,000, 8%, 20-year bonds at 102.00. |  |  |  |
|  |  |  |  |  |  |
| b. Jul. | 31 | Interest Expense |  | 59,250 |  |
|  |  | Bond Premium |  | 750 |  |
|  |  | Cash |  |  | 60,000 |
|  |  | To pay semi-annual interest ($1,500,000 × 0.08 × 6/12) and amortize bond premium by the straight-line method ($30,000 ÷ 40). |  |  |  |
|  |  |  |  |  |  |
| c. Dec. | 31 | Interest Expense |  | 49,375 |  |
|  |  | Bond Premium |  | 625 |  |
|  |  | Interest Payable |  |  | 50,000 |
|  |  | To accrue interest payable ($1,500,000 × 0.08 × 5/12) and amortize bond premium by the straight-line method ($750 × 5/6) for fivemonths. |  |  |  |
|  |  |  |  |  |  |
| **2021** | |  |  |  |  |
| d. Jan. | 31 | Interest Expense |  | 9,875 |  |
|  |  | Interest Payable |  | 50,000 |  |
|  |  | Bond Premium |  | 125 |  |
|  |  | Cash |  |  | 60,000 |
|  |  | To pay semi-annual interest ($1,500,000 × 0.08 × 6/12) and amortize bond premium ($750 × 1/6). |  |  |  |

(15-20 min.) **E15-10**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | A | B | C | D | E | F |
| 1 |  | **8.5%** | **10%** |  |  | **Bond** |
| 2 |  | **Interest** | **Interest** | **Discount** | **Discount** | **Carrying** |
| 3 | **Date** | **Payment** | **Expense** | **Amortization** | **Balance** | **Amount** |
| 4 |  |  |  |  |  |  |
| 5 | Jan. 2, 2020 |  |  |  | $227,447 | $3,772,553 |
| 6 | Dec. 31, 2020 | $340,000 | $377,255 | $37,255 | 190,192 | 3,809,808 |
| 7 | Dec. 31, 2021 | 340,000 | 380,981 | 40,981 | 149,211 | 3,850,789 |
| 8 | Dec. 31, 2022 | 340,000 | 385,079 | 45,079 | 104,132 | 3,895,868 |
| 9 | Dec. 31, 2023 | 340,000 | 389,587 | 49,587 | 54,545 | 3,945,455 |
| 10 | Dec. 31, 2024 | 340,000 | 394,545 | 54,545 | 0 | 4,000,000 |

Optional Note: Using a financial calculator, Inputs are

[FV 4 mil, I – 10%, N – 5 yrs, pmt – (4 mil × .085)].

Computer-generated solutions may contain slight rounding differences.

*(15-20 min.)* **E15-11**

Req. 1

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | A | B | C | D | E | F |
| 1 | **Semi-annual Interest Period** | **Interest Payment  (4% of Maturity Values)** | **Interest Expense  (3 % of Preceding Bond Carrying Amount)** | **Premium Amortization** | **Unamortized Premium Account Balance** | **Bond Carrying Amount ($8,000,000 + Premium)** |
| 2 | Sep. 30, 2020 |  |  |  | $1,849,182 | $9,849,182\* |
| 3 | Mar. 31, 2021 | $320,000 | $295,475 | $24,525 | 1,824,657 | 9,824,657 |
| 4 | Sep. 30, 2021 | 320,000 | 294,740 | 25,260 | 1,799,397 | 9,799,397 |
| 5 | Mar. 31, 2022 | 320,000 | 293,982 | 26,018 | 1,773,379 | 9,773,379 |
| 6 | Sep. 30, 2022 | 320,000 | 293,201 | 26,799 | 1,746,580 | 9,746,580 |

\* $8,000,000 × 1.23115 = $9,849,200

Optional Note: financial calculator (FV 8 mil, N 40, I 3%, PMT $320,000) = $9,849,182

Req. 2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| **2020** | |  |  |  |  |
| Sep. | 30 | Cash |  | 9,849,182 |  |
|  |  | Bonds Payable |  |  | 8,000,000 |
|  |  | Premium on Bonds Payable |  |  | 1,849,182 |
|  |  | To issue 8%, 20-year bonds at premium. |  |  |  |
|  |  |  |  |  |  |
| Dec. | 31 | Interest Expense |  | 147,738 |  |
|  |  | Premium on Bonds Payable |  | 12,262 |  |
|  |  | Interest Payable |  |  | 160,000 |
|  |  | To accrue three months’ interest expense ($295,475 × 3/6), interest payable ($320,000 × 3/6) and amortize premium for three months ($24,525× 3/6). |  |  |  |
|  |  |  |  |  |  |
| **2021** | |  |  |  |  |
| Mar. | 31 | Interest Expense |  | 147,737 |  |
|  |  | Premium on Bonds Payable |  | 12,263 |  |
|  |  | Interest Payable |  | 160,000 |  |
|  |  | Cash |  |  | 320,000 |
|  |  | To pay semi-annual interest, part of which was accrued, and amortize bond premium for three months ($24,525 – $12,262). Interest expense is ($295,475 – $147,738). |  |  |  |

Req. 1 (10-15 min.) **E15-12**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | A | B | C | D | E | F |
| 1 | **Semi-annual Interest Period** | **Interest Payment  (2 1/2% of Maturity Values)** | **Interest Expense  (3% of Preceding Bond Carrying Amount)** | **Discount Amortization** | **Unamortized Discount Account Balance** | **Bond Carrying Amount ($4,800,000 – Discount)** |
| 2 | Jan. 2, 2020 |  |  |  | $357,059 | $4,442,941 |
| 3 | Jun. 30, 2020 | $120,000 | $133,288 | $13,288 | 343,771 | 4,456,229 |
| 4 | Dec. 31, 2020 | 120,000 | 133,687 | 13,687 | 330,084 | 4,469,916 |
| 5 | Jun. 30, 2021 | 120,000 | 134,097 | 14,097 | 315,987 | 4,484,013 |
| 6 | Dec. 31, 2021 | 120,000 | 134,520 | 14,520 | 301,467 | 4,498,533 |

Req. 2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date**  **2020** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| Jan. | 2 | Cash |  | 4,442,941 |  |
|  |  | Discount on Bonds Payable |  | 357,059 |  |
|  |  | Bonds Payable |  |  | 4,800,000 |
|  |  | To record issuance of 5 percent, 10-year bonds. |  |  |  |
|  |  |  |  |  |  |
| Jun. | 30 | Interest Expense |  | 133,288 |  |
|  |  | Cash |  |  | 120,000 |
|  |  | Discount on Bonds Payable |  |  | 13,288 |
|  |  | To pay semi-annual interest and amortize discount on bonds payable. |  |  |  |
|  |  |  |  |  |  |
| Dec. | 31 | Interest Expense |  | 133,687 |  |
|  |  | Cash |  |  | 120,000 |
|  |  | Discount on Bonds Payable |  |  | 13,687 |
|  |  | To pay semi-annual interest and amortize discount on bonds payable. |  |  |  |

(continued) **E15-12**

*Req. 3*

|  |  |  |
| --- | --- | --- |
| **BINGO LTD.** | | |
| Balance Sheet (partial) | | |
| January 2, 2020 | | |
| **Liabilities** |  |  |
| Long-term liabilities |  |  |
| Bonds payable | $4,800,000 |  |
| Less: Discount on bonds payable | 357,059 | $4,442,941 |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| **BINGO LTD.** | | |
| Balance Sheet (partial) | | |
| December 31, 2021 | | |
| **Liabilities** |  |  |
| Long-term liabilities |  |  |
| Bonds payable | $4,800,000 |  |
| Less: Discount on bonds payable | 301,467 | $4,498,533 |
|  |  |  |

(15 min.) **E15-13**

*Req. 1*

The contract rate on the bonds exceeded the market rate of interest. Bond purchasers were willing to pay a premium for this higher interest rate.

*Req. 2*

|  |  |  |  |
| --- | --- | --- | --- |
| **General Journal** | | | |
| **Date** | **Account Titles and Explanations** | **Debit** | **Credit** |
| May 6 | Premium on Bonds Payable | 453,000 |  |
|  | Bonds Payable | 10,000,000 |  |
|  | Cash |  | 10,200,000 |
|  | Gain on Retirement of Bonds |  | 253,000 |

*Req. 3*

The amortization method for bond premium or discount has no effect on the amount of cash interest paid on the bond. The amount of cash interest depends on the contract interest rate stated on the bond.

(15-20 min.) **E15-14**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | A | B | | C | D | E | F |
| 1 | **Semi-annual Interest Period** | | **Interest Payment  (4% of Maturity Value)** | **Interest Expense  (4.5 % of Preceding Bond Carrying Amount)** | **Discount Amortization** | **Unamortized Discount Account Balance** | **Bond Carrying Amount ($6,000,000 − Discount)** |
| 2 | Oct. 01 2020 | |  |  |  | $237,382 | $5,762,618 |
| 3 | Apr. 01 2021 | | $240,000 | $259,318 | $19,318 | 218,064 | 5,743,300 |
| 4 | Oct. 01 2021 | | 240,000 | 258,449 | 18,449 | 199,615 | 5,724,851 |

FV 6 mil, I 4.5%, N – 10, Pmt $240,000, Comp PV or price = $5,762,618

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date**  **2021** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| Oct. | 1 | Interest Expense |  | 258,449 |  |
|  |  | Discount on Bonds Payable |  |  | 18,449 |
|  |  | Cash\* |  |  | 240,000 |
|  |  |  |  |  |  |
|  | 1 | Bonds Payable |  | 6,000,000 |  |
|  |  | Loss on Retirement of Bonds Payable |  | 319,615 |  |
|  |  | Discount on Bonds Payable |  |  | 199,615 |
|  |  | Cash\*\* |  |  | 6,120,000 |

\* Cash paid for interest = $6,000,000 × 0.08 × 6/12 = $240,000

\*\* Cash paid to retire the bonds = $6,000,000 × 1.02 = $6,120,000

(15 min.) **E15-15**

*Req. 1*

$300,000 – $293,400 = $6,600 discount

$6,600 ÷ 10 years = $660 annual amortization

$660 × 2 years = $1,320 amortized discount as of July 1, 2021

$6,600 – $1,320 = $5,280 unamortized discount as of July 1, 2021

*Req. 2*

|  |  |  |  |
| --- | --- | --- | --- |
| **General Journal** | | | |
| **Date**  **2021** | **Account Titles and Explanations** | **Post. Ref.** | **Debit** |
| Jul. 1 | Bonds Payable | 150,000 |  |
|  | Discount on Bonds Payable |  | 2,640 |
|  | Common Shares |  | 147,360 |

(15-20 min.) **E15-16**

Req. 1

It would be beneficial to convert if the bonds are callable at a price below the trading value or the shares have increased in price.

Req. 2

Initial carrying amount of bonds ($7,500,000 × 0.97) $7,275,000

Amortization of discount July 1, 2020, through

December 31, 2021 ($225,000 ÷ 15 × 1.5)        22,500

Carrying amount of bonds at December 31, 2021 $7,297,500

Req. 3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date**  **2021** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| Dec. | 31 | Bonds Payable |  | 7,500,000 |  |
|  |  | Discount on Bonds |  |  | 202,500 |
|  |  | Common Shares |  |  | 7,297,500 |

Req. 4

$7,500,000 ÷ $1,000 × 80 = 600,000 common shares

(10-15 min.) **E15-17**

Req. 1 and 2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date**  **2020** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| Oct. | 1 | Bonds payable |  | 800,000 |  |
|  |  | Loss on Retirement of Bonds |  | 54,000 |  |
|  |  | Discount on Bonds |  |  | 30,000 |
|  |  | Cash |  |  | 824,000 |
|  |  | To retire bonds before maturity.  Retire at $800,000 × 1.03 = $824,000  Use half of discount and half of bonds.  Loss = $824,000 + 30,000 - $800,000 |  |  |  |
|  |  |  |  |  |  |
| Oct. | 1 | Bonds Payable |  | 400,000 |  |
|  |  | Discount on Bonds |  |  | 15,000 |
|  |  | Common Shares |  |  | 385,000 |
|  |  | To record conversion of bonds.  Convert $1,600,000 × ¼ = $400,000  Less ¼ of discount = $385,000 of shares |  |  |  |

(15-20 min.) **E15-18**

|  |  |  |
| --- | --- | --- |
| **PUDONG TRANSPORT LTD.** | | |
|  | PLAN A BORROW $4,000,000  AT 9% | PLAN B  ISSUE 400,000 of COMMON SHARES |
| Net income after interest and income tax, before expansion | $2,000,000 | $2,000,000 |
| Project income before interest and income tax | 840,000 | 840,000 |
| Interest expense ($4,000,000 × 0.09) | 360,000 | — |
| Project income before income tax | 480,000 | 840,000 |
| Income tax on new project (35%) | 168,000 | 294,000 |
| Project net income | 312,000 | 546,000 |
| Total company net income | $2,312,000 | $2,546,000 |
| Earnings per share including expansion |  |  |
| Plan A ($2,312,000 ÷ 400,000 shares) | $ 5.78 |  |
| Plan B ($2,546,000 ÷ 800,000 shares) |  | $ 3.18 |

(15-20 min.) **E15-19**

|  |  |  |
| --- | --- | --- |
| **KNUTSEN FINANCIAL SERVICES LTD.** | | |
|  | PLAN A BORROW $3,000,000  AT 4% | PLAN B  ISSUE $3,000,000 of COMMON SHARES |
| Net income after interest and income tax, before expansion | $ 900,000 | $ 900,000 |
| Project income before interest and income tax | 600,000 | 600,000 |
| Interest expense ($3,000,000 × 0.04) | 120,000 | — |
| Project income before income tax | 480,000 | 600,000 |
| Income tax on new project (30%) | 144,000 | 180,000 |
| Project net income | 336,000 | 420,000 |
| Total company net income | $1,236,000 | $1,320,000 |
| Earnings per share including expansion |  |  |
| Plan A ($1,236,000 ÷ 300,000 shares) | $ 4.12 |  |
| Plan B ($1,320,000 ÷ 600,000 shares) |  | $ 2.20 |

Although the net earnings are greater by issuing shares, the individual shareholders would benefit more by the company issuing bonds. However, before a decision is made it should be determined how long these profits will continue into the future and if there will be sufficient cash flow to service and eventually eliminate this new debt. Otherwise, the company could be left with a long-term liability for interest when the profits from the project have evaporated.

(15-20 min.) **E15-20**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date**  **2020** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
|  | Jan. | 1 | Cash |  | 500,000 |  |
|  |  |  | Mortgage Payable |  |  | 500,000 |
|  |  |  | To record cash received on issuance of 5 percent, 20-year mortgage. |  |  |  |
|  |  |  |  |  |  |  |
|  | Jul. | 1 | Mortgage payable |  | 7,418 |  |
|  |  |  | Interest Expense |  | 12,500 |  |
|  |  |  | Cash |  |  | 19,918 |
|  |  |  | To record the first mortgage payment on July 1, 2020. |  |  |  |

(10-15 min.) **E15-21**

|  |  |  |
| --- | --- | --- |
| **GIFFEN PRODUCTIONS LTD.** | | |
| Balance Sheet (partial) | | |
| March 31, 2020 | | |
| Liabilities |  |  |
| Current liabilities |  |  |
| Current portion of long-term debt |  | $   300,000 |
| Long-term liabilities |  |  |
| Long-term debt \* | $2,100,000 |  |
| Less: Discount on long-term debt | 16,000 | 2,084,000 |
| Total liabilities |  | $2,384,000 |

\* Total debt less current = long term so, $2,400,000 – $300,000 = $2,100,000

(15-20 min.) **E15-22**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
|  |  | | ***Req. 1 - Capital lease:*** |  |  |  |
|  | **2020** | |  |  |  |  |
|  | Jan. | 2 | Leased Equipment |  | 270,361 |  |
|  |  |  | Cash |  |  | 40,000 |
|  |  |  | Lease Liability |  |  | 230,361 |
|  |  |  | To acquire equipment ($40,000 + $230,361) and make the first annual payment on a capital lease. |  |  |  |
|  |  |  |  |  |  |  |
|  | Dec. | 31 | Amortization Expense |  | 27,036 |  |
|  |  |  | Accumulated Amortization—Leased Equipment |  |  | 27,036 |
|  |  |  | To record amortization on leased equipment ($270,361 ÷ 10). |  |  |  |
|  |  |  |  |  |  |  |
|  |  | 31 | Interest Expense |  | 23,036 |  |
|  |  |  | Lease Liability |  |  | 23,036 |
|  |  |  | To accrue interest on the lease liability ($230,361 × 0.10). |  |  |  |
|  |  |  |  |  |  |  |
|  | **2021** | |  |  |  |  |
|  | Jan. | 2 | Lease Liability |  | 40,000 |  |
|  |  |  | Cash |  |  | 40,000 |
|  |  |  | To make second annual lease payment on equipment. |  |  |  |
|  |  |  |  |  |  |  |
|  |  | | ***Req. 2 - Operating lease:*** |  |  |  |
|  | **2020** | |  |  |  |  |
|  | Jan. | 2 | Lease Expense (or Rent Expense) |  | 40,000 |  |
|  |  |  | Cash |  |  | 40,000 |
|  |  |  | To record annual lease payment. |  |  |  |

(15-20 min.) **E15-23**

|  |  |  |
| --- | --- | --- |
| **BOOTH ICE HUTS INC**. | | |
| Balance Sheet (partial) | | |
| December 31, 2020 | | |
| **Liabilities** |  |  |
| Current liabilities |  |  |
| Accounts payable | $     57,000 |  |
| Current portion of bonds payable | 162,000 |  |
| Current obligation under capital lease | 12,000 |  |
| Interest payable | 31,000 |  |
| Total current liabilities |  | $   262,000 |
| Long-term liabilities |  |  |
| Notes payable, long-term |  | 200,000 |
| Bonds payable | 1,020,000 |  |
| Less: Discount on bonds payable | (18,000) | 1,002,000 |
| Capital lease liability |  | 136,000 |
| Total long-term liabilities |  | $1,338,000 |
| Total liabilities |  | $1,600,000 |

Serial Exercise *(40-50 min.)* E15-24

Req. 1

Canyon Canoe Company’s bond will be issued at a discount because the cash proceeds are less than the face value of the bonds.

Req. 2

|  |  |  |  |
| --- | --- | --- | --- |
| **Date**  **2023** | **Accounts and Explanation** | **Debit** | **Credit** |
| Jan. 2 | Cash | 208,476 |  |
|  | Discount on Bonds Payable | 1,524 |  |
|  | Bonds Payable |  | 210,000 |
|  | Discount is $1,524 ($210,000 − $208,476). |  |  |
|  |  |  |  |
| 2 | Cash | 450,000 |  |
|  | Mortgages Payable |  | 450,000 |
|  |  |  |  |
| Jun. 30 | Interest Expense | 8,002 |  |
|  | Discount on Bonds Payable |  | 127 |
|  | Cash |  | 7,875 |
|  | Cash interest payment is $7,875 ($210,000 × 0.075 × 6/12). The discount is $127 ($1,524 × 1/12). Interest expense is $8,002 ($127 + $7,875). |  |  |
|  |  |  |  |
| Dec. 31 | Interest Expense | 8,002 |  |
|  | Discount on Bonds Payable |  | 127 |
|  | Cash |  | 7,875 |
|  | Cash interest payment is $7,875 ($210,000 × 0.075 × 6/12). The discount is $127 ($1,524 × 1/12). Interest expense is $8,002 ($127 + $7,875). |  |  |
|  |  |  |  |
| 31 | Mortgage Payable | 45,000 |  |
|  | Interest Expense | 36,000 |  |
|  | Cash |  | 81,000 |
|  | Interest expense is $36,000 ($450,000 × 0.08 × 12/12). |  |  |

*(continued)* E15-24

Req. 3

|  |  |
| --- | --- |
| **Date** | **Interest**  **Expense** |
| Jun. 30 | $ 8,002 |
| Dec. 31 | 8,002 |
| Dec. 31 | 36,000 |
| Totals | $52,004 |
|  |  |

**Challenge Exercise**

(20-30 min.) **E15-25**

Req. 1

Millar Corporation issued the bonds to investors in order to borrow $98.5 million ($100 million × 0.985) from the investors. Millar Corporation received cash and the investors paid cash of $98.5 million. The amount of the debentures payable on Millar Corporation’s books is $100 million, with a Discount on Debentures Payable of $1.5 million.

Req. 2

$9,000,000 ($100,000,000 × 0.09)

Req. 3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Interest Payment | Interest Expense 4.6%\* | Discount Amortization | Discount Balance | Bond Carrying Amount |
|  |  |  |  | 1,500,000 | 98,500,000 |
| Nov. 16, 2020 | 4,500,000 | 4,531,000 | 31,000 | 1,469,000 | 98,531,000 |
| May 16, 2021 | 4,500,000 | 4,532,426 | 32,426 | 1,436,574 | 98,563,426 |

\* Effective interest rate = 9.2% ÷ 2 (semi-annual payment) = 4.6%

Req. 4

The interest expense for the first full year is $9,063,426 ($4,531,000 + $4,532,426).

Req. 5

The bond issue for $20,000,000 carrying an interest rate of 12 percent (which is higher than the Millar issue) is likely a debenture that has no collateral and includes more risk. In order to attract investors, the interest rate would have to be greater than the Millar bond issue, which is a secured debenture, as noted in the advertisement.

**Beyond the Numbers**

(10-15 min.) **BN15-1**

1. Corporations prefer operating leases because they can avoid reporting the lease liability on the balance sheet. This keeps reported liabilities, and the debt ratio, lower than if the lease were capitalized. Corporations hope this will enable them to borrow on more favourable terms.

2. Companies prefer to borrow for longer periods when interest rates are low in order to lock in the low cost of interest for a lengthy period. When interest rates are high, companies prefer to borrow short-term in the hope that interest rates will decrease. Then the company will expect to borrow long-term at lower interest rates again.

3. IMAX will actually borrow $1,920,000 ($2,000,000 × 0.96). IMAX must pay back the full $2,000,000 at maturity.

Ethical Issue

EI15-1

It is not unethical to commit a company to a high level of debt. Lenders and other creditors are hurt most directly by a company that cannot pay its debts. Trade creditors and other lenders need to protect their own interests, and they can refuse to sell goods on credit or make loans if they feel the company may not be able to pay them. As long as the borrower is honest and meets the requirements imposed by creditors, by shareholders, and by taxing and other legal authorities, then the borrower’s behaviour can be considered ethical.

Taking on too much debt is risky because interest and principal must be paid according to the terms of the agreement—during bad times as well as good. Again, it is the creditor’s responsibility to evaluate a debtor’s ability to pay its liabilities. In many cases lenders will want personal assets and guarantees to be conservative or cautious. Lenders that advance too much or additional credit to a losing business are said to “throw good money after bad.”

Problems

Group A

(20-25 min.) **P15-1A**

*Req. 1*

|  |  |
| --- | --- |
| a. | Maturity value = $600,000 |
| b. | Carrying value at December 31, 2020 = $552,000 |
| c. | $600,000 × 0.06 × 12/12 = $36,000 annual interest;  $36,000 × 6/12 = $18,000 semi-annual cash payment |
| d. |  |
|  | $600,000 face value  – $600,000 × 0.90 (sold @ 90)  = $60,000 discount at date of sale  Discount ÷ 10 years = $6,000 per year  Then add $36,000 interest = $42,000 interest expense per year |

*Req. 2*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **General Journal** | | | | |
| **Date**  **2020** | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| Jun. 30 | Interest Expense |  | 21,000 |  |
|  | Discount on Bonds Payable |  |  | 3,000 |
|  | Cash |  |  | 18,000 |
|  | Paid semi-annual interest payment and amortized discount. |  |  |  |

Cash for interest = $600,000 × 0.06 × 6/12 = $18,000

Discount = $60,000 ÷ 10 x 6/12 = $3,000

(20-25 min.) **P15-2A**

Req. 1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
|  | **2020** | |  |  |  |  |
|  | a. Jun. | 30 | Cash |  | 12,040,000 |  |
|  |  |  | Bonds Payable |  |  | 12,000,000 |
|  |  |  | Interest Payable ($12,000,000 × 4% × 1/12) |  |  | 40,000 |
|  |  |  | To issue $12,000,000, 4%, 10-year bonds at par, one month after the original issue date. |  |  |  |
|  |  |  |  |  |  |  |
|  | b. Nov. | 30 | Interest Expense |  | 200,000 |  |
|  |  |  | Interest Payable |  | 40,000 |  |
|  |  |  | Cash |  |  | 240,000 |
|  |  |  | To pay semi-annual interest on bonds payable—$12,000,000 at 4% × 6/12. |  |  |  |
|  |  |  |  |  |  |  |
|  | c. Dec. | 31 | Interest Expense |  | 40,000 |  |
|  |  |  | Interest Payable |  |  | 40,000 |
|  |  |  | To accrue interest for one month ($240,000 × 1/6). |  |  |  |
|  |  |  |  |  |  |  |
|  | **2021** | |  |  |  |  |
|  | d. May | 31 | Interest Expense |  | 200,000 |  |
|  |  |  | Interest Payable |  | 40,000 |  |
|  |  |  | Cash |  |  | 240,000 |
|  |  |  | To pay semi-annual interest on bonds payable. |  |  |  |

Req. 2

|  |  |
| --- | --- |
| **JETER PRODUCTION CO. LTD.** | |
| Balance Sheet (partial) | |
| December 31, 2020 | |
| **Liabilities** |  |
| Current liabilities |  |
| Interest payable | $40,000 |
| Long-term liabilities |  |
| Bonds payable | 12,000,000 |
| Total liabilities | $12,040,000 |

(continued) **P15-2A**

Req. 3

There are two different types of accrued interest in 2020: the normal year-end accrual at December 31, 2020, and interest that is collected when bonds are sold between interest dates (on June 30, 2020).

(30-40 min.) **P15-3A**

*Req. 1*

The 8.5% bonds issued when the market interest rate is 7.5% will be priced at a premium. They will be priced so that the yield to purchasers will approximate 7.5%.

Req. 2

The 8.5% bonds issued when the market interest rate is 9% will be priced at a discount. They are unattractive in this market, so investors will pay less than par value to acquire them. The price will reflect a yield of 9%.

(continued) **P15-3A**

Req. 3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
|  | **2020** | |  |  |  |  |
|  | a. Mar. | 1 | Cash |  | 4,850,000 |  |
|  |  |  | Discount on Bonds Payable |  | 150,000 |  |
|  |  |  | Bonds Payable |  |  | 5,000,000 |
|  |  |  | To issue $5,000,000, 8 1/2%, 20-year bonds at 97. ($5,000,000 x 0.97) |  |  |  |
|  |  |  |  |  |  |  |
|  | b. Aug. | 31 | Interest Expense |  | 216,250 |  |
|  |  |  | Cash |  |  | 212,500 |
|  |  |  | Discount on Bonds Payable |  |  | 3,750 |
|  |  |  | To pay semi-annual interest at 8 1/2% ($5,000,000 × 8.5% × 6/12) and amortize discount on $5,000,000 bonds ($150,000/40). |  |  |  |
|  |  |  |  |  |  |  |
|  | c. Dec. | 31 | Interest Expense |  | 144,167 |  |
|  |  |  | Interest Payable |  |  | 141,667 |
|  |  |  | Discount on Bonds Payable |  |  | 2,500 |
|  |  |  | To accrue four months’ interest ($212,500 × 4/6) and amortize discount on bonds payable for four months ($3,750 × 4/6). |  |  |  |
|  |  |  |  |  |  |  |
|  | **2021** | |  |  |  |  |
|  | d. Feb. | 28 | Interest Expense |  | 72,083 |  |
|  |  |  | Interest Payable |  | 141,667 |  |
|  |  |  | Cash |  |  | 212,500 |
|  |  |  | Discount on Bonds Payable |  |  | 1,250 |
|  |  |  | To pay semi-annual interest and amortize discount on bonds payable for two months ($3,750 × 2/6). |  |  |  |

(continued) **P15-3A**

Req. 4

|  |  |  |
| --- | --- | --- |
| **GILL MANAGEMENT LTD.** | | |
| Balance Sheet (partial) | | |
| December 31, 2020 | | |
| **Liabilities** |  |  |
| Current liabilities |  |  |
| Interest payable |  | $   141,667 |
| Long-term liabilities |  |  |
| Bonds payable | $5,000,000 |  |
| Less: Discount on bonds payable\* | 143,750 | 4,856,250 |
| Total liabilities |  | $4,997,917 |

\* Discount = $150,000 – $3,750 – $2,500 = $143,750

(30-45 min.) **P15-4A**

Req. 1

a. Maturity value is $2,000,000 ($1,776,838 + $223,162)

b. Carrying amount is $1,776,838 on September 30, 2020; $1,783,448 on September 30, 2021.

c. Annual cash interest payment is $100,000 ($2,000,000 × 0.05)

Req. 2

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | A | B | C | D | E | F |
| 1 | **End of Annual Interest Period** | **Interest Payment (5% of Maturity Value)** | **Interest Expense  (6% of Preceding Bond Carrying Amount)** | **Discount Amortization** | **Unamortized Discount Account Balance** | **Bond Carrying Amount ($2,000,000 – Discount)** |
| 2 | Sep. 30, 2020 |  |  |  | $223,162 | $1,776,838 |
| 3 | Sep. 30, 2021 | $100,000 | $106,610 | $6,610 | 216,552 | 1,783,448 |
| 4 | Sep. 30, 2022 | 100,000 | 107,007 | 7,007 | 209,545 | 1,790,455 |

Req. 3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date**  **2022** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| Sep. | 30 | Interest Expense |  | 107,007 |  |
|  |  | Cash |  |  | 100,000 |
|  |  | Discount on Bonds Payable |  |  | 7,007 |
|  |  | To pay annual interest and amortize discount on bonds payable. |  |  |  |

Req. 4

The carrying amount of the 5% debentures at September 30, 2022, is $1,790,455.

(40-50 min.) **P15-5A**

Req. 1

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | A | B | C | D | E | F |
| 1 | **Semi-annual Interest Period** | **Interest Payment (3% of Maturity Value)** | **Interest Expense  (2 1/2% of Preceding Bond Carrying Amount)** | **Premium Amortization** | **Unamortized Premium Account Balance** | **Bond Carrying Amount ($6,000,000 + Premium)** |
| 2 | Dec. 31, 2020 |  |  |  | $467,675 | $6,467,675\* |
| 3 | Jun. 30, 2021 | $180,000 | $161,692 | $18,308 | 449,367 | 6,449,367 |
| 4 | Dec. 31, 2021 | 180,000 | 161,234 | 18,766 | 430,601 | 6,430,601 |
| 5 | Jun. 30, 2022 | 180,000 | 160,765 | 19,235 | 411,366 | 6,411,366 |
| 6 | Dec. 31, 2022 | 180,000 | 160,284 | 19,716 | 391,650 | 6,391,650 |

\* $6,000,000 × 1.0779458 = $6,467,675

(continued) **P15-5A**

Req. 2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
|  | **2020** | |  |  |  |  |
|  | a. Dec. | 31 | Cash |  | 6,467,675 |  |
|  |  |  | Convertible Bonds Payable |  |  | 6,000,000 |
|  |  |  | Premium on Bonds Payable |  |  | 467,675 |
|  |  |  | To issue $6,000,000, 6%, 10-year bonds at $107.79458. |  |  |  |
|  |  |  |  |  |  |  |
|  | **2021** | |  |  |  |  |
|  | b. Jun. | 30 | Interest Expense |  | 161,692 |  |
|  |  |  | Premium on Bonds Payable |  | 18,308 |  |
|  |  |  | Cash |  |  | 180,000 |
|  |  |  | To pay semi-annual interest and amortize premium. |  |  |  |
|  |  |  |  |  |  |  |
|  | c. Dec. | 31 | Interest Expense |  | 161,234 |  |
|  |  |  | Premium on Bonds Payable |  | 18,766 |  |
|  |  |  | Cash |  |  | 180,000 |
|  |  |  | To pay semi-annual interest and amortize premium. |  |  |  |
|  |  |  |  |  |  |  |
|  | **2022** | |  |  |  |  |
|  | d. Jul. | 2 | Convertible Bonds Payable |  | 3,000,000 |  |
|  |  |  | Premium on Bonds Payable |  | 205,683 |  |
|  |  |  | Cash |  |  | 3,120,000 |
|  |  |  | Gain on Retirement of Bonds Payable |  |  | 85,683 |
|  |  |  | To retire bonds payable before maturity ($3,000,000 at 104).  Premium is $411,366 × ½ = 205,683 |  |  |  |
|  | **2022** | |  |  |  |  |
|  | e. Jul. | 2 | Convertible Bonds Payable |  | 2,000,000 |  |
|  |  |  | Premium on Bonds Payable |  | 137,122 |  |
|  |  |  | Common Shares |  |  | 2,137,122 |
|  |  |  | To record conversion of $2,000,000 bonds into 40,000 shares.  Premium is $411,366 × 1/3 = 137,122 |  |  |  |

(continued) **P15-5A**

*Req. 3*

|  |  |  |
| --- | --- | --- |
| **PRAGA LTD.** | | |
| Balance Sheet (partial) | | |
| December 31, 2022 | | |
| Long-term liabilities |  |  |
| Convertible bond payable | $1,000,000 |  |
| Premium on bonds payable | 65,275 | $1,065,275 |

Bonds = $6,000,000 – $2,000,000 – $3,000,000 = $1,000,000

Premium = $391,650 × 1/6 = $65,275

(20-30 min.) **P15-6A**

Req. 1

Blackburn Inc. should issue bonds since its strong performance will attract bondholders to buy. Given a choice, another reason Blackburn Inc. may also want to borrow is in order to increase earnings per share and thus make the company still more attractive. Since Blackburn is purchasing new equipment, secured bonds would allow the company to set the most attractive interest rates for these bonds.

Sage Consulting Limited should attempt to issue shares because that option carries less risk than does borrowing. Issuing shares carries no obligation for the company to make payments to the shareholders. If times get tough, the company can refuse to pay dividends to conserve cash to finance operations. Unfortunately, Sage Consulting’s recent performance may make it difficult to issue shares. Weak profits will make the shares unattractive to potential investors. Therefore, the company may be forced to borrow. If Sage Consulting Limited can borrow, and if it can use the cash successfully, borrowing will result in higher earnings per share than issuing shares. However, borrowing will bring the burden of principal and interest payments on the debt. These amounts must be paid year in and year out regardless of the level of sales and profits. To make these bonds more attractive and to lower the interest cost of these bonds, Sage could issue convertible bonds.

Req. 2

This problem will help students learn to manage a business by showing that different companies raise money in different ways—by borrowing or issuing shares—depending on their profitability and outlook for the future.

*Instructional Note:* Student responses will vary considerably for both requirements.

*(20-30 min.)* **P15-7A**

Req. 1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Period** | **Beginning Balance** | **Blended Monthly Payment** | **Interest Expense** | **Principal Payment** | **Ending Balance** |
| Dec. 31, 2020 |  |  |  |  | $800,000 |
| Jun. 30, 2021 | $800,000 | $93,784 | $24,000 | $69,784 | 730,216 |
| Dec. 31, 2021 | 730,216 | 93,784 | 21,906 | 71,878 | 658,338 |
| Jun. 30, 2022 | 658,338 | 93,784 | 19,750 | 74,034 | 584,304 |
| Dec. 31, 2022 | 584,304 | 93,784 | 17,529 | 76,255 | 508,049 |

Req. 2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date**  **2020** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
|  | Dec. | 31 | Cash |  | 800,000 |  |
|  |  |  | Mortgage Payable |  |  | 800,000 |
|  |  |  | To record cash received on issuance of 6 percent, 5-year mortgage. |  |  |  |

Req. 3

|  |  |  |
| --- | --- | --- |
| **DOMAINE WINES LTD.** | | |
| Balance Sheet (partial) | | |
| December 31, 2020 | | |
| **Liabilities** |  |  |
| Current liabilities\* |  |  |
| Current portion of mortgage payable |  | $  141,662 |
| Long-term liabilities\*\* |  |  |
| Mortgage payable |  | 658,338 |
| Total liabilities |  | $800,000 |

\*Current liabilities *-* 2021 reduction of principal amounts (69,784 + $71,878 = 141,662).

\*\* Long-term portion of the mortgage is calculated as $800,000 – $141,662 = $658,338

Req. 4 (continued) **P15-7A**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date**  **2021** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
|  | Jun. | 30 | Mortgage Payable |  | 69,784 |  |
|  |  |  | Interest Expense |  | 24,000 |  |
|  |  |  | Cash |  |  | 93,784 |
|  |  |  |  |  |  |  |
|  | Dec. | 31 | Mortgage Payable |  | 71,878 |  |
|  |  |  | Interest Expense |  | 21,906 |  |
|  |  |  | Cash |  |  | 93,784 |

(30-40 min.) **P15-8A**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date**  **2020** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| Jan. | 2 | Cash |  | 4,850,000 |  |
|  |  | Discount on Bonds Payable |  | 150,000 |  |
|  |  | Bonds Payable |  |  | 5,000,000 |
|  |  | To issue $5,000,000 7%, 10-year bonds at 97 |  |  |  |
|  |  |  |  |  |  |
|  | 2 | Leased Equipment |  | 1,724,851 |  |
|  |  | Cash |  |  | 400,000 |
|  |  | Capital Lease Liability |  |  | 1,324,851 |
|  |  | To acquire equipment and make the first annual payment on a capital lease.  PMT - $400,000, I/Y – 8, FV – 0, N - 5 |  |  |  |
|  |  |  |  |  |  |
| Jul. | 2 | Interest Expense |  | 182,500 |  |
|  |  | Cash |  |  | 175,000 |
|  |  | Discount on Bonds Payable |  |  | 7,500 |
|  |  | To pay semi-annual interest at 7% and amortize discount on $5,000,000 bonds.  Cash = $5,000,000 × 7% × 6/12 = 175,000  Discount = $150,000 ÷ 20 = 7,500 |  |  |  |

(continued) **P15-8A**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| **2020** | |  |  |  |  |
| Dec. | 31 | Interest Expense |  | 182,500 |  |
|  |  | Interest Payable |  |  | 175,000 |
|  |  | Discount on Bonds Payable |  |  | 7,500 |
|  |  | To accrue semi-annual interest expense on bonds payable and amortize discount. |  |  |  |
|  |  |  |  |  |  |
|  | 31 | Amortization Expense |  | 344,970 |  |
|  |  | Accumulated Amortization—Leased |  |  |  |
|  |  | Equipment |  |  | 344,970 |
|  |  | To record amortization on $1,724,851 leased equipment over five years. |  |  |  |
|  |  |  |  |  |  |
|  | 31 | Interest Expense |  | 105,988 |  |
|  |  | Lease Liability |  |  | 105,988 |
|  |  | To accrue interest expense on the lease liability ($1,324,851 × 8%). |  |  |  |
|  |  |  |  |  |  |
| **2030** | |  |  |  |  |
| Jan. | 2 | Bonds Payable |  | 5,000,000 |  |
|  |  | Cash |  |  | 5,000,000 |
|  |  | To record payment of bonds at maturity. |  |  |  |

(20-30 min.) **P15-9A**

|  |  |  |  |
| --- | --- | --- | --- |
| **CRYPTOCURRENCY MANAGERS INC**. | | | |
| Balance Sheet (partial) | | | |
| Property, plant, and equipment |  | Current liabilities |  |
| Leased building | $800,000 | Bonds payable, current portion, net of premium | $ 103,091 |
| Less: Accumulated amortization | 448,000 | Capital lease liability, current portion | 74,000 |
|  | 352,000 | Interest payable | 98,820 |
|  |  | Mortgage payable | 201,000 |
|  |  | Total current liabilities | 476,911 |
|  |  | Long-term liabilities |  |
|  |  | Mortgage payable | 501,000 |
|  |  | Bonds payable, net of premium | 1,030,909 |
|  |  | Capital lease liability | 538,000 |
|  |  | Total long-term liabilities | 2,069,909 |

\* *Instructional Notes:*

1. The order of listing current and long-term liabilities is optional. However, Premium on Bonds Payable should come immediately after Bonds Payable. Also, it is customary to report Interest Payable after the related liability accounts.

2. The premium on bonds payable can be split into current, **$7,091** [$96,000 ÷ ($96,000 + $960,000) × $78,000] and long-term, **$70,909** [$960,000 ÷ ($96,000 + $960,000) × $78,000].

3. Bonds payable (current portion) is calculated as follows:

|  |  |
| --- | --- |
| Current portion of bonds payable | $ 96,000 |
| Add: Premium | 7,091 |
|  | $103,091 |

4. Bonds payable (long-term portion) is calculated as follows:

|  |  |
| --- | --- |
| Bonds payable, long term | $ 960,000 |
| Add: Premium | 70,909 |
|  | $1,030,909 |

Problems

Group B

*(20-25 min.)* P15-1B

*Req. 1*

|  |  |
| --- | --- |
| a. | $300,000 |
| b. | $264,000 |
| c. | $300,000 × 0.08 × 12/12 = $24,000;  Semi-annual is $24,000 × 1/2 = $12,000 |
| d. | $300,000 – ($300,000 × 0.85) = $45,000  Discount ÷ 10 years = $4,500 per year  Semi-annual discount is then $2,250  Cash interest = 8% \* $300,000 = $24,000 per year  $4,500 per year + $24,000 per year = $28,500 per year |

*Req. 2*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **General Journal** | | | | |
| **Date**  **2020** | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| Jun. 30 | Interest Expense |  | 14,250 |  |
|  | Discount on Bonds Payable |  |  | 2,250 |
|  | Cash |  |  | 12,000 |
|  | Paid semi-annual interest payment and amortized discount. |  |  |  |

(20-25 min.) **P15-2B**

*Req. 1*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
|  | **2020** | |  |  |  |  |
|  | a. Apr. | 30 | Cash |  | 10,050,000 |  |
|  |  |  | Bonds Payable |  |  | 10,000,000 |
|  |  |  | Interest Payable |  |  | 50,000 |
|  |  |  | To issue 6%, 20-year bonds at par, one month after the original issue date.  Interest = $10,000,000 × 0.06 × 1/12 |  |  |  |
|  |  |  |  |  |  |  |
|  | b. Sep. | 30 | Interest Expense |  | 250,000 |  |
|  |  |  | Interest Payable |  | 50,000 |  |
|  |  |  | Cash |  |  | 300,000 |
|  |  |  | To pay semi-annual interest on $10,000,000 bonds payable at 6%. |  |  |  |
|  |  |  |  |  |  |  |
|  | c. Dec. | 31 | Interest Expense |  | 150,000 |  |
|  |  |  | Interest Payable |  |  | 150,000 |
|  |  |  | To accrue interest for 3 months $300,000 × 3/6 |  |  |  |
|  |  |  |  |  |  |  |
|  | **2021** | |  |  |  |  |
|  | d. Mar. | 31 | Interest Expense |  | 150,000 |  |
|  |  |  | Interest Payable |  | 150,000 |  |
|  |  |  | Cash |  |  | 300,000 |
|  |  |  | To pay semi-annual interest on $10,000,000 bonds payable at 6%. |  |  |  |

(continued) **P15-2B**

Req. 2

|  |  |
| --- | --- |
| **FARRELL COMMUNICATIONS LTD.** | |
| Balance Sheet (partial) | |
| December 31, 2020 | |
| **Liabilities** |  |
| Current liabilities |  |
| Interest payable | $ 150,000 |
| Long-term liabilities |  |
| Bonds payable | 10,000,000 |
| Total liabilities | $10,150,000 |

Req. 3

There are two different types of accrued interest: the normal year-end accrual and interest that is collected when bonds are sold between interest dates.

(30-40 min.) **P15-3B**

*Req. 1*

The 7% bonds issued when the market interest rate is 9% will be priced at a *discount*. They are unattractive in this market, so investors will pay a price below par value to acquire them and this will bring the effective yield up to the current market rate.

Req. 2

The 7% bonds issued when the market interest rate is 5% will be priced at a *premium*. They are attractive in this market, so investors will pay more than par value to acquire them, which will bring the yield down to the current market rate.

(continued) **P15-3B**

Req. 3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
|  | **2020** | |  |  |  |  |
|  | a. Apr. | 1 | Cash |  | 3,090,000 |  |
|  |  |  | Bonds Payable |  |  | 3,000,000 |
|  |  |  | Premium on Bonds Payable |  |  | 90,000 |
|  |  |  | To issue $3,000,000, 7%, 10-year bonds at 103.00. |  |  |  |
|  |  |  |  |  |  |  |
|  | b. Sep. | 30 | Interest Expense |  | 100,500 |  |
|  |  |  | Premium on Bonds Payable |  | 4,500 |  |
|  |  |  | Cash |  |  | 105,000 |
|  |  |  | To pay semi-annual interest ($3,000,000 × 0.07 × 6/12) and amortize premium on bonds payable ($90,000 ÷ 20). |  |  |  |
|  |  |  |  |  |  |  |
|  | c. Dec. | 31 | Interest Expense |  | 50,250 |  |
|  |  |  | Premium on Bonds Payable |  | 2,250 |  |
|  |  |  | Interest Payable |  |  | 52,500 |
|  |  |  | To accrue three months’ interest ($105,000 × 3/6) and amortize premium on bonds payable for three months ($4,500 × 3/6). |  |  |  |
|  |  |  |  |  |  |  |
|  | **2021** | |  |  |  |  |
|  | d. Mar. | 31 | Interest Expense |  | 50,250 |  |
|  |  |  | Interest Payable |  | 52,500 |  |
|  |  |  | Premium on Bonds Payable |  | 2,250 |  |
|  |  |  | Cash |  |  | 105,000 |
|  |  |  | To pay semi-annual interest and amortize premium ($4,500 × 3/6). |  |  |  |

(continued) **P15-3B**

Req. 4

|  |  |  |
| --- | --- | --- |
| **SORA INC.** | | |
| Balance Sheet (partial) | | |
| December 31, 2020 | | |
| **Liabilities** |  |  |
| Current liabilities |  |  |
| Interest payable |  | $ 52,500 |
| Long-term liabilities |  |  |
| Bonds payable | $3,000,000 |  |
| Premium on bonds payable\* | 83,250 | 3,083,250 |
| Total liabilities |  | $3,135,750 |

\*Premium = $90,000 – $4,500 – $2,250 = $83,250

(30-45 min.) **P15-4B**

Req. 1

a. Maturity value is $2,000,000 ($1,793,288 + $206,712)

b. Annual cash interest payment is $120,000 ($2,000,000 × 0.06)

c. Carrying amount is $1,793,288 in 2020 and $1,798,818 in 2021

d. 19 years

Req. 2

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | A | B | C | D | E | F |
| 1 | **End of  Annual Interest Period** | **Interest Payment (6% of Maturity Value)** | **Interest Expense  (7% of Preceding Bond Carrying Amount)** | **Discount Amortization** | **Unamortized Discount Account Balance** | **Bond Carrying Amount ($2,000,000 – Discount)** |
| 2 | Jun. 30, 2020 |  |  |  | $206,712 | $1,793,288 |
| 3 | Jun. 30, 2021 | $120,000 | $125,530 | $5,530 | 201,182 | 1,798,818 |
| 4 | Jun. 30, 2022 | 120,000 | 125,917 | 5,917 | 195,265 | 1,804,735 |
| 5 | Jun. 30, 2023 | 120,000 | 126,331 | 6,331 | 188,934 | 1,811,066 |

Req. 3 (continued) **P15-4B**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| **2022** | |  |  |  |  |
| Jun. | 30 | Interest Expense |  | 125,917 |  |
|  |  | Cash |  |  | 120,000 |
|  |  | Discount on Bonds Payable |  |  | 5,917 |
|  |  | To pay annual interest and amortize discount on bonds payable. |  |  |  |
|  |  |  |  |  |  |
| **2023** | |  |  |  |  |
| Jun. | 30 | Interest Expense |  | 126,331 |  |
|  |  | Cash |  |  | 120,000 |
|  |  | Discount on Bonds Payable |  |  | 6,331 |
|  |  | To pay annual interest and amortize discount on bonds payable. |  |  |  |

Req. 4

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date**  **2021** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| Jun. | 30 | Interest Expense |  | 40,000 |  |
|  |  | Cash |  |  | 40,000 |
|  |  | To pay annual interest on other indebtedness of $800,000 at 5.00%. |  |  |  |

Req. 1 (40-50 min.) **P15-5B**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | A | B | C | D | E | F |
| 1 | **Semi-annual Interest Period** | **Interest Payment (2% of Maturity Value)** | **Interest Expense  (2 1/2% of Preceding Bond Carrying Amount)** | **Discount Amortization** | **Unamortized Discount Account Balance** | **Bond Carrying Amount ($4,500,000 – Discount)** |
| 2 | Dec. 31, 2020 |  |  |  | $350,757 | $4,149,243\* |
| 3 | Jun. 30, 2021 | $90,000 | $103,731 | $13,731 | 337,026 | 4,162,974 |
| 4 | Dec. 31, 2021 | 90,000 | 104,074 | 14,074 | 322,952 | 4,177,048 |
| 5 | Jun. 30, 2022 | 90,000 | 104,426 | 14,426 | 308,526 | 4,191,474 |
| 6 | Dec. 31, 2022 | 90,000 | 104,787 | 14,787 | 293,739 | 4,206,261 |

\* $4,500,000 × 0.922054 = $4,149,243

Req. 2 (continued) **P15-5B**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
|  | **2020** | |  |  |  |  |
|  | a. Dec. | 31 | Cash |  | 4,149,243 |  |
|  |  |  | Discount on Bonds Payable |  | 350,757 |  |
|  |  |  | Convertible Bonds Payable |  |  | 4,500,000 |
|  |  |  | To issue $4,500,000, 4%, 10-year bonds at 92.2054. |  |  |  |
|  |  |  |  |  |  |  |
|  | **2021** | |  |  |  |  |
|  | b. Jun. | 30 | Interest Expense |  | 103,731 |  |
|  |  |  | Cash |  |  | 90,000 |
|  |  |  | Discount on Bonds Payable |  |  | 13,731 |
|  |  |  | To pay semi-annual interest and amortize discount. |  |  |  |
|  |  |  |  |  |  |  |
|  | c. Dec. | 31 | Interest Expense |  | 104,074 |  |
|  |  |  | Cash |  |  | 90,000 |
|  |  |  | Discount on Bonds Payable |  |  | 14,074 |
|  |  |  | To pay semi-annual interest and amortize discount. |  |  |  |
|  |  |  |  |  |  |  |
|  | **2022** | |  |  |  |  |
|  | d. Jul. | 2 | Convertible Bonds Payable |  | 200,000 |  |
|  |  |  | Loss on Retirement of Bonds Payable |  | 5,712 |  |
|  |  |  | Cash |  |  | 192,000 |
|  |  |  | Discount on Bonds Payable |  |  | 13,712 |
|  |  |  | Purchase and retirement of $200,000 bonds at 96.  Cash = $200,000 × 0.96 = $192,000  Discount = $308,526 × 200 ÷ 4,500 = $13,712 |  |  |  |
|  |  |  |  |  |  |  |
|  | e. | 2 | Convertible Bonds Payable |  | 400,000 |  |
|  |  |  | Discount on Bonds Payable |  |  | 27,425 |
|  |  |  | Common shares |  |  | 372,575 |
|  |  |  | To record conversion of bonds payable to 5,000 common shares.  Discount = $308, 526 × 400 ÷ 4,500 = $27,425 |  |  |  |

Req. 3 (continued) **P15-5B**

|  |  |  |
| --- | --- | --- |
| **SIERRA CORP**. | | |
| Balance Sheet (partial) | | |
| December 31, 2022 | | |
| Long-term liabilities |  |  |
| Convertible bond payable | $3,900,000 |  |
| Less: Discount on bonds payable | 254,574 | $3,645,426 |

Bond = $4,500,000 – $200,000 – $400,000

Discount = $293,739 × 3,900 ÷ 4,500

(20-30 min.) **P15-6B**

DATE: Today’s date

TO: Management of Orca Ltd.

FROM: Student Name

SUBJECT: Advantages and disadvantages of borrowing and issuing  
shares to raise $15 million for expansion

*Advantages and disadvantages of borrowing:* Raising money by borrowing has at least three advantages over issuing common shares. Borrowing does not change the present ownership of the business. It enables the present owners to keep their proportionate interests in the business and to carry out their plans without interference from a new group of shareholders. Under normal conditions, borrowing results in higher earnings per common share because although the net profit is less due to the interest charge, there are fewer shares to divide the profit among. Higher earnings per share usually leads to higher share prices for company owners. In addition, interest expenses are deductible for income tax purposes. Secured bonds would be a good option as the property could be used as collateral in order to issue the bonds with an attractive interest rate. The main disadvantage of borrowing is that the debt may create a burden for the company. The principal and the related interest expense must be paid regardless of whether the company is earning a profit or not. If times get sufficiently bad, the debt burden could threaten the ability of the business to continue as a going concern.

*Advantages and disadvantages of issuing shares:* The main advantage of issuing shares is that owners avoid the burden of making interest and principal payments on the debt. Issuing shares creates no liability to pay anything to the owners. If the directors consider it necessary, they can refuse to pay dividends in order to conserve cash needed for operations. Therefore, it is safer to issue shares. One disadvantage of issuing shares is dilution of the ownership interests of existing shareholders if the purchasers of new shares are outsiders. The new shareholders may have different ideas about how to manage the business and so may pose difficulties for the original shareholder group. Another disadvantage of issuing shares is that earnings per share are usually lower because of (1) the greater number of shares outstanding and (2) the non-tax-deductibility of dividends paid on the shares.

*Instructional Note:* Student responses will vary considerably.

(20-30 min.) **P15-7B**

Req. 1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Semi-annual Interest Period** | **Beginning Balance** | **Cash Payment** | **Interest Expense  3%** | **Principal Reduction** | **Ending Balance** |
| Dec. 31, 2020 |  |  |  |  | $600,000 |
| Jun. 30, 2021 | $600,000 | $70,338 | $18,000 | $52,338 | 547,662 |
| Dec. 31, 2021 | 547,662 | 70,338 | 16,430 | 53,908 | 493,754 |
| Jun. 30, 2022 | 493,754 | 70,338 | 14,813 | 55,525 | 438,229 |
| Dec. 31, 2022 | 438,229 | 70,338 | 13,147 | 57,191 | 381,038 |

Req. 2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date**  **2020** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
|  | Dec. | 31 | Cash |  | 600,000 |  |
|  |  |  | Mortgage Payable |  |  | 600,000 |
|  |  |  | To record cash received on issuance of 6 percent, 5-year mortgage. |  |  |  |

Req. 3

|  |  |  |
| --- | --- | --- |
| **WERSTIRENER BREWING LTD.** | | |
| Balance Sheet (partial) | | |
| December 31, 2020 | | |
| **Liabilities** |  |  |
| Current liabilities\* |  |  |
| Mortgage payable |  | $  106,246 |
| Long-term liabilities\*\* |  |  |
| Mortgage payable |  | 493,754 |
| Total liabilities |  | $600,000 |

\*Current liabilities are the 2021 reduction of principal amounts of $52,338 + $53,908 = $106,246

\*\*Long-term portion of the mortgage payable is $600,000 – $106,246 = $493,754

(continued) **P15-7B**

Req. 4

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date**  **2021** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
|  | Jun. | 30 | Mortgage payable |  | 52,338 |  |
|  |  |  | Interest Expense |  | 18,000 |  |
|  |  |  | Cash |  |  | 70,338 |
|  |  |  |  |  |  |  |
|  | Dec. | 31 | Mortgage payable |  | 53,908 |  |
|  |  |  | Interest Expense |  | 16,430 |  |
|  |  |  | Cash |  |  | 70,338 |

(30-40 min.) **P15-8B**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date**  **2020** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| Jan. | 2 | Cash |  | 7,760,000 |  |
|  |  | Discount on Bonds Payable |  | 240,000 |  |
|  |  | Bonds Payable |  |  | 8,000,000 |
|  |  | To issue $8,000,000 7%, 10-year bonds at 97.00. |  |  |  |
|  |  |  |  |  |  |
|  | 2 | Leased Machinery |  | 333,589 |  |
|  |  | Cash |  |  | 80,000 |
|  |  | Capital Lease Liability |  |  | 253,589 |
|  |  | To lease machinery and make the first annual payment on the capital lease.  (Pmt - $80,000, I – 10%, N – 5, FV – 0)  Machinery = $80,000 + $253,589 = $333,589 |  |  |  |
|  |  |  |  |  |  |
| Jul. | 2 | Interest Expense |  | 292,000 |  |
|  |  | Cash |  |  | 280,000 |
|  |  | Discount on Bonds Payable |  |  | 12,000 |
|  |  | To pay semi-annual interest ($8,000,000 × 0.07 × 6/12) and amortize discount on bonds payable ($240,000 ÷ 20). |  |  |  |

(continued) **P15-8B**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| **2020** | |  |  |  |  |
| Dec. | 31 | Interest Expense |  | 292,000 |  |
|  |  | Interest Payable |  |  | 280,000 |
|  |  | Discount on Bonds Payable |  |  | 12,000 |
|  |  | To accrue semi-annual interest ($8,000,000 × 0.07 × 6/12) and amortize discount on bonds payable ($240,000 ÷ 20). |  |  |  |
|  |  |  |  |  |  |
|  | 31 | Amortization Expense |  | 66,718 |  |
|  |  | Accumulated Amortization—Leased |  |  |  |
|  |  | Machinery |  |  | 66,718 |
|  |  | To record amortization on leased machinery.  ($333,589 ÷ 5) |  |  |  |
|  |  |  |  |  |  |
|  | 31 | Interest Expense |  | 25,359 |  |
|  |  | Capital Lease Liability |  |  | 25,359 |
|  |  | To accrue interest expense on the lease liability ($253,589 × 0.10). |  |  |  |
|  |  |  |  |  |  |
| **2030** | |  |  |  |  |
| Jan. | 2 | Bonds Payable |  | 8,000,000 |  |
|  |  | Cash |  |  | 8,000,000 |
|  |  | To record payment of bonds payable at maturity. |  |  |  |

(20-30 min.) **P15-9B**

|  |  |  |  |
| --- | --- | --- | --- |
| **ARTHUR CURRY ASSOCIATES INC.** | | | |
| Balance Sheet (partial) | | | |
| Property, plant, and equipment |  | Current liabilities |  |
| Equipment under capital |  | Mortgage payable, |  |
| lease | $ 591,000 | Current | $   69,000 |
| Accumulated amortization | (123,000) | Bonds payable, current |  |
|  | 468,000 | portion, net of discount | 220,800\* |
|  |  | Capital lease liability, current | 64,000 |
|  |  | Interest payable | 84,000 |
|  |  | Total current liabilities | 437,800 |
|  |  | Long-term liabilities |  |
|  |  | Mortgage payable | 238,000 |
|  |  | Bonds payable, net of |  |
|  |  | discount | 883,200\* |
|  |  | Capital lease liability | 162,000 |
|  |  | Total long-term liabilities | 1,283,200 |

\* Note Discount must be split on a pro-rata basis between current and long-term

*Instructional Notes:*

1. The order of listing current liabilities and long-term liabilities is optional. However, Discount on Bonds Payable should come immediately after Bonds Payable, if listed separately. Also, it is customary to report Interest Payable after the related liability accounts.

2. The discount on bonds payable can be split into current, **$4,200** [$225,000 ÷ ($225,000 +   
$900,000) × $21,000] and long-term, **$16,800** [$900,000 ÷ ($225,000 + $900,000) × $21,000].

3. Bonds payable, current portion is calculated as follows:

Current portion of bonds payable $   225,000

Less: Discount          4,200

$   220,800

4. Bonds payable (long-term portion) is calculated as follows:

Bonds payable, long-term $ 900,000

Less: Discount on long-term bonds        16,800

$ 883,200

**Challenge Problems**

**P15-1C**

Next Systems Ltd. has financed its growth through earnings retained in the business, which is probably why its dividend is lower. It is reasonable to assume that the lower price is a result of the lower dividend per share. Because it has financed growth through earnings, Next is less likely to be affected by the higher interest rates.

QT Logistics Inc. has financed growth through short- and long-term borrowing and thus has had more money available for dividends. However, QT could be hit with much higher borrowing costs because of the predicted higher interest rates, especially with respect to short-term borrowings. Profits and thus dividends may well decline. And the share price may follow.

The economic news and the facts provided suggest that Next is the better investment at this time for the reasons noted.

Req. 1 (40-60 min.) **P15-2C**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CASTELGAR SYSTEMS INC.** | | | | | |
| **Semi-annual Interest Period** | **Interest Payment (4.5% of Maturity Value)** | **Interest Expense  (4% of Preceding Bond Carrying Amount)** | **Premium Amortization** | **Unamortized Premium Account Balance** | **Bond Carrying Amount ($5,000,000 + Premium)** |
| Apr. 2, 2020 |  |  |  | $131,053 | $5,131,053 |
| Oct. 2, 2020 | $225,000 | $205,242 | $19,758 | 111,295 | 5,111,296 |
| Apr. 2, 2021 | 225,000 | 204,452 | 20,548 | 90,747 | 5,090,747 |
| Oct. 2, 2021 | 225,000 | 203,630 | 21,370 | 69,377 | 5,069,377 |
| Apr. 2, 2022 | 225,000 | 202,775 | 22,225 | 47,152 | 5,047,152 |
| Oct. 2, 2022 | 225,000 | 201,886 | 23,114 | 24,038 | 5,024,038 |
| Apr. 2, 2023 | 225,000 | 200,962 | 24,038 | 0 | 5,000,000 |

Req. 2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date**  **2021** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| Jan. | 2 | Rent Expense |  | 50,000 |  |
|  |  | Cash |  |  | 50,000 |
|  |  | Rent of warehouse for 12 months. |  |  |  |
|  |  |  |  |  |  |
|  | 2 | Leased Equipment |  | 270,361 |  |
|  |  | Cash |  |  | 40,000 |
|  |  | Capital Lease Liability |  |  | 230,361 |
|  |  | To record capital lease for equipment and payment of first year’s rental. |  |  |  |
|  |  |  |  |  |  |
| Apr. | 2 | Interest Payable |  | 112,500 |  |
|  |  | Bond Interest Expense |  | 102,226 |  |
|  |  | Premium on Bonds Payable |  | 10,274 |  |
|  |  | Cash |  |  | 225,000 |
|  |  | Note; Half of the bond interest expense and half of the premium on bonds payable was previously accrued at December 31, 2020. |  |  |  |

(continued) **P15-2C**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| **2021** | |  |  |  |  |
| Oct. | 2 | Bond Interest Expense |  | 203,630 |  |
|  |  | Premium on Bonds Payable |  | 21,370 |  |
|  |  | Cash |  |  | 225,000 |
|  |  |  |  |  |  |
| Dec. | 31 | Bond Interest Expense |  | 101,387 |  |
|  |  | Premium on Bonds Payable |  | 11,113 |  |
|  |  | Bond Interest Payable |  |  | 112,500 |
|  |  | Accrual 3/6 of $202,775 = $101,387; 3/6 of $22,225 = $11,113; 3/6 of $225,000 = $112,500. |  |  |  |
|  |  |  |  |  |  |
|  | 31 | Amortization Expense—Leased Equipment |  | 24,332 |  |
|  |  | Accumulated Amortization—Leased |  |  |  |
|  |  | Equipment |  |  | 24,332 |
|  |  | ($270,361 – $27,036) ÷ 10 = $24,332 |  |  |  |
|  |  |  |  |  |  |
|  | 31 | Interest Expense |  | 23,036 |  |
|  |  | Capital Lease Liability |  |  | 23,036 |
|  |  | ($230,361 at 10%) |  |  |  |
|  |  |  |  |  |  |
| **2022** | |  |  |  |  |
| Jan. | 2 | Rent Expense |  | 50,000 |  |
|  |  | Cash |  |  | 50,000 |
|  |  | Rent of building for 12 months. |  |  |  |
|  |  |  |  |  |  |
|  | 2 | Capital Lease Liability |  | 40,000 |  |
|  |  | Cash |  |  | 40,000 |
|  |  | Lease payment. |  |  |  |
|  |  |  |  |  |  |
| Apr. | 2 | Bond Interest Expense |  | 101,388 |  |
|  |  | Premium on Bonds Payable |  | 11,112 |  |
|  |  | Bond Interest Payable |  | 112,500 |  |
|  |  | Cash |  |  | 225,000 |
|  |  | $202,775 – $101,387 = $101,388 |  |  |  |
|  |  |  |  |  |  |
| Oct. | 2 | Bond Interest Expense |  | 201,886 |  |
|  |  | Premium on Bonds Payable |  | 23,114 |  |
|  |  | Cash |  |  | 225,000 |

*(continued)* **P15-2C**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date**  **2022** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| Dec. | 31 | Bond Interest Expense |  | 100,481 |  |
|  |  | Premium on Bonds Payable |  | 12,019 |  |
|  |  | Bond Interest Payable |  |  | 112,500 |
|  |  | Accrual 3/6 of $200,962 = $100,481 |  |  |  |
|  |  |  |  |  |  |
|  | 31 | Amortization Expense—Leased Equipment |  | 24,332 |  |
|  |  | Accumulated Amortization—Leased Equipment |  |  | 24,332 |
|  |  | ($270,361 – $27,036) ÷ 10 = $24,332 |  |  |  |
|  |  |  |  |  |  |
|  | 31 | Interest Expense |  | 21,340 |  |
|  |  | Capital Lease Liability |  |  | 21,340 |
|  |  | ($230,361 + $23,036 – $40,000) × 10% = $21,340 |  |  |  |

Req. 3

|  |  |  |
| --- | --- | --- |
| **CASTLEGAR SYSTEMS INC.** | | |
| Balance Sheet (partial) | | |
| December 31, 2022 | | |
| **Liabilities** |  |  |
| Current liabilities |  |  |
| Bonds payable | $5,000,000 |  |
| Premium on bonds payable | 12,019\* | $5,012,019 |
| Bond interest payable |  | 112,500 |
| Capital lease liability |  | 40,000 |
| Long-term liabilities |  |  |
| Obligation under capital lease |  | 194,737 |
| Total liabilities |  | $5,359,256 |

\* $131,053 – $19,758 – $10,274 – 10,274 – $21,370 – $11,112 – 11,113 – $23,114 – $12,019 = $12,019

|  |  |  |  |
| --- | --- | --- | --- |
| Capital Lease Liability | | | |
| Jan. 2 | 40,000 | Jan. 2 | 230,361 |
| Dec. 31 | 23,036 |
| Dec. 31 | 21,340 |
|  |  |  | 234,737\*\* |

\*\* For the balance of $234,737, $40,000 is current and $194,737 is long-term.

**Decision Problems**

Req. 1(30-40 min.) **DP15-1**

|  |  |  |  |
| --- | --- | --- | --- |
| **VALLEY FOREST PRODUCTS INC.** | | | |
|  | Plan A | Plan B | Plan C |
|  | Borrow At 8% | Issue Common Shares | Issue $7.50 Nonvoting Cumulative Preferred Shares |
| Income before interest and income tax |  |  |  |
| —existing | $18,000,000 | $18,000,000 | $18,000,000 |
| —new | 9,000,000 | 9,000,000 | 9,000,000 |
|  | 27,000,000 | 27,000,000 | 27,000,000 |
| Less interest expense ($30,000,000 × 0.08) | 2,400,000 | 0 | 0 |
| Income before income tax | 24,600,000 | 27,000,000 | 27,000,000 |
| Less income tax expense (35%) | 8,610,000 | 9,450,000 | 9,450,000 |
| Net income | 15,990,000 | 17,550,000 | 17,550,000 |
| Less preferred dividends |  |  |  |
| (300,000 × $7.50) | 0 | 0 | 2,250,000 |
| Net income available to common shareholders | $15,990,000 | $17,550,000 | $15,300,000 |
|  |  |  |  |
| Earnings per share including new project: |  |  |  |
| Plan A ($15,990,000 ÷ 1,500,000 shares) | $ 10.66 |  |  |
| Plan B ($17,550,000 ÷ 1,800,000 shares) |  | $ 9.75 |  |
| Plan C ($15,300,000 ÷ 1,500,000 shares) |  |  | $ 10.2 |

Req. 2

The best choice appears to be Plan A—borrowing at 8 percent—because:

(1) Borrowing allows the family to maintain control of the business,

(2) EPS is higher under borrowing than under issuing preferred shares (which would also maintain family control), and

(3) EPS under borrowing is higher than it would be if common shares were issued. Also, cash flow under borrowing may be almost as good as under issuing common shares after considering shareholders’ demands for dividends.

**Financial Statement Cases**

*(15-20 min.)* **FSC15-1**

*Req. 1*

From the balance sheet, the amount of long-term debt outstanding at April 1, 2017, was $2,429,000 (This includes long-term accrued liabilities and provisions: $2,378,000 and $51,000).

*Req. 2*

Indigo identifies two types of long-term debt: long-term accrued liabilities and long-term provisions.

*Req. 3*

Note 3 states that “The Company uses judgment in determining whether a lease qualifies as a finance lease arrangement that transfers substantially all the risks and rewards incidental to ownership.”

*Req. 4*

Yes. Note 9 identifies “Equipment under finance leases” as assets under “Property, Plant, and Equipment.”

(15-20 min.) **FSC15-2**

Req. 1

Non-current liabilities on the balance sheet include:

(all amounts in millions) Dec. 31, 2016 Dec. 31, 2015

Provisions 395 433

Long-term debt 11,604 11,182

Other long-term liabilities 736 688

Deferred income taxes 2,107 2,155

Req. 2

Note 19 – Leases identified the types of leases and in what year there is an obligation.

TELUS leases land, buildings, and equipment under operating leases.

Req. 3

2016 2015

Financing Costs (in $ millions) 520 447

**Appendix Problems**

Req. 1 (accumulating a fund to purchase land) (15-20 min.) **P15A-1**

Future Value of $1

Present value × at 9% for 5 years = Future value

(Exhibit 15A-2)

$800,000 × 1.539 = $1,231,200

For 6 years

$800,000 × 1.677 = $1,341,600

Note that calculators and computers may give different answers due to rounding.

Req. 2 (future value of an investment)

Future Value of

Annual × Annuity of $1 Future

investment for 5 years = value

at 6% (Exhibit 15A-4)

$10,000 × 5.637 = $56,370

at 8%

$10,000 × 5.867 = $58,670

(15-20 min.) **P15A-2**

Req. 1 (relating present and future value)

Future Value of $1

Present value × at 5% for 6 years = Future value

(Exhibit 15A-2)

$12,000,000 × 1.340 = $16,080,000

Req. 2

Present Value of $1

Future value × at 5% for 6 years = Present value

(Exhibit 15A-6)

$20,000,000 × 0.746 = $14,920,000

Req. 3

The future value solution in (a) is based on the same equation as the present value solution in (b). The factor used in (b) is the reciprocal of that used in (a), i.e.,  = 0.746

Present value × (1 + Interest rate)number of periods = Future value

*Instructional Note:* Student responses will vary on this basic theme.

Req. 1 (40-50 min.) **P15A-3**

|  |  |
| --- | --- |
| PRESENT VALUE OF NOTE | |
| PV of principal: |  |
| $100,000 × PV of single amount at 10% for 5 periods |  |
| $100,000 × 0.621 (Exhibit 15A-6) | $62,100 |
|  |  |
| PV of interest: |  |
| ($100,000 × 0.09) × PV of annuity at 10% for 5 periods |  |
| $9,000 × 3.791 (Exhibit 15A-7) | 34,119 |
| PV (market price) of note | $96,219 |

Req. 2

|  |  |
| --- | --- |
| PRESENT VALUE OF BONDS | |
| PV of principal: |  |
| $200,000 × PV of single amount at 5% for 20 periods |  |
| $200,000 × 0.377 (Exhibit 15A-6) | $  75,400 |
|  |  |
| PV of interest: |  |
| ($200,000 × 0.12 × 6/12) × PV of annuity at 5% for 20 periods |  |
| $12,000 × 12.462 (Exhibit 15A-7) | 149,544 |
| PV (market price) of bonds | $224,944 |

Req. 3 (continued) **P15A-3**

|  |  |
| --- | --- |
| PRESENT VALUE OF NOTE | |
| PV of principal: |  |
| $200,000 × PV of single amount at 4% for 20 periods |  |
| $200,000 × 0.456 (Exhibit 15A-6) | $  91,200 |
|  |  |
| PV of interest: |  |
| ($200,000 × 0.12 × 6/12) × PV of annuity at 4% for 20 periods |  |
| $12,000 × 13.590 (Exhibit 15A-7) | 163,080 |
| PV (market price) of note | $254,280 |

Req. 4

|  |  |
| --- | --- |
| PRESENT VALUE OF BONDS | |
| PV of principal: |  |
| $200,000 × PV of single amount at 6% for 20 periods |  |
| $200,000 × 0.312 (Exhibit 15A-6) | $  62,400 |
|  |  |
| PV of interest: |  |
| ($200,000 × 0.12 × 6/12) × PV of annuity at 6% for 20 periods |  |
| $12,000 × 11.470 (Exhibit 15A-7) | 137,640 |
| PV (market price) of bonds | $200,040 |

*Note:* This present value should be $200,000. Difference of $40 is due to rounding in the present value tables.

Req. 1 (40-50 min.) **P15A-4**

|  |  |
| --- | --- |
| PRESENT VALUE | |
| PV of principal: |  |
| $600,000 × PV of single amount at 4% for 20 periods |  |
| $600,000 × 0.456 (Exhibit 15A-6) | $273,600 |
|  |  |
| PV of interest: |  |
| ($600,000 × 0.0725 × 6/12) × PV of annuity at 4% for 20 periods |  |
| $21,750 × 13.590 (Exhibit 15A-7) | 295,583 |
| PV (market price) of note | $569,183 |

Req. 2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| PARTIAL AMORTIZATION TABLE | | | | | |
| **Semi-annual Interest Period** | **Interest Payment  (3.625% of Maturity Values)** | **Interest Expense  (4% of Preceding Bond Carrying Amount)** | **Discount Amortization** | **Unamortized Discount Account Balance** | **Bond Carrying Amount ($600,000 – Discount)** |
| Dec. 31, 2020 |  |  |  | $30,817 | $569,183 |
| Jun. 30, 2021 | $21,750 | $22,767 | $1,017 | 29,800 | 570,200 |
| Dec. 31, 2021 | 21,750 | 22,808 | 1,058 | 28,742 | 571,258 |

Req. 3 (continued) **P15A-4**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **General Journal** | | | | | |
| **Date** | | **Account Titles and Explanations** | **Post. Ref.** | **Debit** | **Credit** |
| **2020** | |  |  |  |  |
| Dec. | 31 | Cash |  | 569,183 |  |
|  |  | Discount on Bonds Payable |  | 30,817 |  |
|  |  | Bonds Payable |  |  | 600,000 |
|  |  | To issue 7.25%, 10-year bonds at a discount. |  |  |  |
|  |  |  |  |  |  |
| **2021** | |  |  |  |  |
| Jun. | 30 | Interest Expense |  | 22,767 |  |
|  |  | Cash |  |  | 21,750 |
|  |  | Discount on Bonds Payable |  |  | 1,017 |
|  |  | To pay semi-annual interest and amortize discount. |  |  |  |
|  |  |  |  |  |  |
| Dec. | 31 | Interest Expense |  | 22,808 |  |
|  |  | Cash |  |  | 21,750 |
|  |  | Discount on Bonds Payable |  |  | 1,058 |
|  |  | To pay semi-annual interest and amortize discount. |  |  |  |

(20-30 min.) **P15A-5**

Evaluating payment plans

Ford offer:

Present Value of $1

Future amount × at 6% for 4 years = Present value

(Exhibit 15A-6)

$120,000 × 0.792 = $95,040

Toyota offer:

Present Value

Amount of Annuity of $1

each annual × at 6% for 4 years = Present value

payment (Exhibit 15A-7)

$28,000 × 3.465 = $97,020

Decision: Buy from Ford because the price in terms of present value is lower.

*Note:* Interestingly, the amount to be paid to Ford is greater [$120,000 versus $112,000 ($28,000 × 4) to Toyota]. However, the decision is based on present value, and Ford offers the lowest price.