

A. MULTIPLE CHOICE QUESTIONS (40%)

| | |
|----|---|
| 1 | C |
| 2 | D |
| 3 | C |
| 4 | C |
| 5 | A |
| 6 | A |
| 7 | D |
| 8 | A |
| 9 | C |
| 10 | B |

| | |
|----|---|
| 11 | C |
| 12 | C |
| 13 | C |
| 14 | D |
| 15 | B |
| 16 | C |
| 17 | C |
| 18 | C |
| 19 | A |
| 20 | B |

B. PROBLEM SOLVING

Problem # 1 (18%)

Khoury Travel Agency

Required:

1. Under the old 10% commission structure, how many round-trip tickets must Khoury sell each month to:

- a. break even
- b. earn an operating income of \$7,000?

1. Khoury Travel receives a 10% commission on each ticket: $10\% \times \$900 = \90 . Thus,

Selling price = \$90 per ticket

Variable cost per unit = \$20 per ticket

Contribution margin per unit = $\$90 - \$20 = \$70$ per ticket

Fixed costs = \$14,000 per month

Fixed costs \$14,000

a. Breakeven number of tickets = $\frac{\text{Fixed costs}}{\text{Contribution margin per unit}} = \frac{\$14,000}{\$70 \text{ per ticket}} = 200 \text{ tickets.}$

Contribution margin per unit \$70 per ticket

b. When target operating income = \$7,000 per month,

Fixed costs + Target operating Income

Tickets required to be sold= _____

Contribution margin per unit

$$= \frac{\$14,000 + \$7,000}{\$70 \text{ per ticket}} = \frac{\$21,000}{\$70 \text{ per ticket}} = 300 \text{ tickets}$$

2. How does United’s revised payment schedule affect your answers to (a) and (b) in requirement 1?

Under the new system, Wembley would receive only \$50 on the \$900 tickets. Thus,

Selling price = \$50 per ticket

Variable cost per unit = \$20 per ticket

Contribution margin per unit = \$50 - \$20 = \$30 per ticket

Fixed costs = \$14,000 per month

\$14,000

a. Breakeven number of tickets= _____ = 467 tickets (rounded up).

\$30 per ticket

\$21,000

b. Tickets required to be sold= _____ = 700 tickets.

\$30 per ticket

The \$50 cap on the commission paid per ticket causes the breakeven point to be more than double (from 200 to 467 tickets) and the tickets required to be sold to earn \$7,000 per month to also more than double (from 300 to 700 tickets). As would be expected, managers at Khoury Travel reacted very negatively to the United Airlines announcement to change commission payments.

Problem # 2 (12%)

Motor Co's

$$\text{a- Current ratio} = \frac{\text{Current Assets } \$600,000}{\text{Current Liabilities } \$200,000} = 3$$

$$\text{b- Quick ratio} = \frac{\text{Cash + marketable securities } \$300,000}{\text{Current Liabilities } \$200,000} = 1.5$$

$$\text{c- Inventory turnover} = \frac{\text{Cost of goods sold } \$600,000}{\text{Average inventory } (\$250,000 + \$300,000) / 2} = 21.82$$

$$\text{d- Average age of inventory} = \frac{365}{\text{Inventory turnover } 21.82} = 16.7 \text{ days}$$

$$\text{e- Debt-equity ratio} = \frac{\text{Total liabilities } \$300,000}{\text{Stockholders' equity } \$800,000} = 0.375$$

$$\text{f- Earnings per share} = \frac{\text{Net income } \$1,500,000}{\text{Outstanding common shares } 100,000 \text{ shares}} = \$15$$

$$\text{g- Common Dividends per share} = \frac{\text{Dividends } \$600,000}{\text{Outstanding shares } 100,000 \text{ shares}} = \$6$$

$$\text{h- Common Dividend payout ratio} = \frac{\text{Dividends per share } \$6}{\text{Earnings per share } \$15} = 0.4$$

Problem # 3 (15%)

Adam’s Shop Calculate the net present value of the machine, based on the initial estimates. Should the machine be purchased? Justify your answer

1. Calculate the net present value, incorporating the additional benefits suggested by the assistant manager. Should the machine be purchased? Justify your answer
2. Calculate the payback period (in years) taking into account the additional benefits highlighted by the assistant manager.

(1)

| Year | 1 | 2 | 3 | 4 | 5 | Total |
|----------------------|----------|----------|----------|----------|----------|-----------|
| Present value factor | 0.901 | 0.812 | 0.731 | 0.659 | 0.593 | 3.696 |
| Cash flows | 4,500.00 | 4,500.00 | 4,500.00 | 4,500.00 | 4,500.00 | 22,500.00 |
| CF* PV factor | 4,054.50 | 3,654.00 | 3,289.50 | 2,965.50 | 2,668.50 | 16,632.00 |

*the Present value factor was rounded to three decimals.

| | |
|---|-----------------|
| Present value of annual cash flows (total above or \$4,500*3.696) | \$16,632 |
| Present value of salvage value (\$4,000 × 0.593) | <u>2,372</u> |
| | \$19,004 |
| Capital investment | <u>20,000</u> |
| Net present value | <u>(\$ 996)</u> |

Based on the negative net present value of \$996, the machine should not be purchased.

| | |
|--|-----------------|
| (2) Present value of annual cash flows [(\$4,500 + \$600) × 3.696] | \$18,850 |
| Present value of salvage value (\$4,000 × 0.593) | <u>2,372</u> |
| | \$21,222 |
| Capital investment | <u>20,000</u> |
| Net present value | <u>\$ 1,222</u> |

Incorporating the additional benefits of \$600/year into the calculation produces a positive net present value of \$1,222. Therefore, the machine should be purchased.

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|-------------------------------------|-----------------|
| (3) Capital investment | \$ 20,000 |
| <u>Divided by</u> Yearly cash flows | <u>\$ 5,100</u> |
| | 3.92 years |

The payback period is 3.92 years.

| | Inflows | Outflows | Unrecovered Investment |
|--------|---------|-------------|------------------------|
| Year 0 | | (20,000.00) | (20,000.00) |
| Year 1 | 5100 | | (14,900.00) |
| Year 2 | 5100 | | (9,800.00) |
| Year 3 | 5100 | | (4,700.00) |
| Year 4 | 5100 | | 400.00 |

Payback Period = 3 + (4700/5100) = 3.92 years

Problem # 4 (15%)

ABC Corp

1. Based on Hania expectation, calculate the price of the common stock today
2. Based on Nader expectation, calculate the price of the common stock today
3. Based on Mosbah expectation, calculate the price of the common stock today

Solution

(1) Based on Hania:

$$P = D/K$$

$$P = 5/0.13 = \$ 38.46$$

(2) Based on Nader:

$$P = D1/(k-g) = D0(1+g)/(k-g)$$

$$P = 5 * 1.05 / (0.13 - 0.05) = \$ 65.63$$

(3) Based on Mosbah:

| Year | Income (formula) | Income \$ | PV factor at 13% | PV of income |
|------|---------------------------|-----------|------------------|---------------|
| 1 | $D1 = 5 * (1.10)$ | 5.500 | 0.885 | 4.868 |
| 2 | $D2 = D1 * (1.10)$ | 6.050 | 0.783 | 4.737 |
| 3 | $D3 = D2 * (1.10)$ | 6.655 | 0.693 | 4.612 |
| | $P3 = D3 * (1+g) / (k-g)$ | 87.347 | 0.693 | 60.531 |
| | | | | 74.748 |