

## Corporate Income Tax Calculation

### Step 1: Calculate Gross Profit

$$\text{Gross Profit} = \text{Sales} - \text{Cost of Goods Sold} \\ \text{Gross Profit} = \$1,060,000 - \$650,000 = \$410,000$$

The gross profit is derived by subtracting the cost of goods sold from the total sales.

Gross Profit of \$410,000 calculated as \$1,060,000 (Sales) minus \$650,000 (Cost of Goods Sold).

### Step 2: Calculate Earnings Before Tax (EBT)

$$\text{EBT} = \text{Gross Profit} - \text{Interest Paid} - \text{Operating Expenses} - \text{Depreciation Expense} + \text{Dividend Income} \\ \text{EBT} = \$410,000 - \$201,000 - \$103,000 - \$49,000 + (50\% \times \$40,000) \\ \text{Since firm owns 22\% of the shares, only 50\% of the dividend income is taxable: } \text{Taxable Dividend Income} = \frac{22\%}{80\%} \times \$40,000 = 50\% \times \$40,000 = \$20,000 \\ \text{Substituting values: } \text{EBT} = \$410,000 - \$201,000 - \$103,000 - \$49,000 + \$20,000 = \$77,000$$

Earnings Before Tax is calculated by adjusting Gross Profit for interest, operating expenses, and depreciation, while adding taxable dividends.

EBT calculated as \$77,000 by considering Gross Profit and accounting for all necessary deductions and the taxable part of dividend income.

### Step 3: Calculate Tax Liability

Laddered approach using tax brackets:

- For first \$50,000, tax is at 15%:  $\text{Tax} = \$50,000 \times 0.15 = \$7,500$
- For remaining \$27,000 (i.e.,  $\$77,000 - \$50,000$ ):  $\text{Tax} = \$27,000 \times 0.25 = \$6,750$

$$\text{Total Tax Liability} = \$7,500 + \$6,750 = \$14,250$$

The tax liability is determined by first applying the 15% rate to the first \$50,000 of EBT, and then applying the 25% rate to the remaining \$27,000.

Tax Liability summed up as \$14,250 by applying appropriate tax rates to different income brackets.

### Step 4: Calculate Average Tax Rate

$$\text{Average Tax Rate} = \frac{\text{Total Tax}}{\text{EBT}} = \frac{\$14,250}{\$77,000} \approx 0.1851 \text{ or } 18.51\%$$

The average tax rate is derived by dividing the total tax by the EBT.

Average Tax rate is calculated as approximately 18.51%.

### Step 5: Marginal Tax Rate

Marginal Tax Rate for EBT range (up to \$77,000) is **25%** (as last bracket was \$50,001 - \$75,000 slab before it stepped up to next slab).

The marginal tax rate is the rate applied to the last dollar of taxable income.

Marginal Tax Rate is 25% for any additional income within the given EBT bracket.

#### Final Solution:

- Tax Liability:** \$14,250 (Rounded to nearest dollar)
- Average Tax Rate:** 18.51%
- Marginal Tax Rate:** 25%

