**Exercise 2**

**Part 1. Income multipliers methods**

**Problem 1.1**

Calculate the Potential Gross Income (PGI), Effective Gross Income (EGI) and Net Operating Income (NOI) of the property given below according to the following information

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Property A | Area (sqm) | Market rent (Birr per sqm) | Market vacancy (%) | O&M costs (Birr per sqm) |
| Residential space | 400 | 12,000 | 1.0% | 2,200 |
| Office space | 200 | 14,000 | 2.0% | 2,500 |
| Retail space | 300 | 18,000 | 3.0% | 2,700 |
| Total | 900 |  |  |  |

**Problem 1.2**

Calculate the Market values of the property by applying income capitalization methods using the information below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Property A | Area (sqm) | Market rent (Birr per sqm) | Market vacancy (%) | O&M costs (Birr per sqm) |
| Residential space | 500 | 10,000 | 1.5% | 2,000 |
| Office space | 250 | 12,000 | 2.5% | 2,500 |
| Retail space | 250 | 14,000 | 4.0% | 2,500 |
| Total | 1,000 |  |  |  |

Potential Gross Income Multiplier (PGIM) = 6.5

Effective Gross Income Multiplier (EGIM) = 6.65

Net Income Multiplier (NIM) = 8.4

**Part 2. Direct capitalization methods**

**Problem 2.1**

Data for five comparable income properties that sold recently are shown below:

|  |  |  |
| --- | --- | --- |
| Property | NOI (Birr) | Sale Price (Birr) |
| A | 57,800 | 566,600 |
| B | 49,200 | 496,900 |
| C | 63,000 | 630,000 |
| D | 56,000 | 538,500 |
| E | 58,500 | 600,000 |

What is the indicated overall rate (RO)?

**Problem 2.2**

If you expect that NOI will remain constant at $100,000 over the next 50 years and that the office building will have no value at the end of 50 years, what is the present value of the building assuming a 12.2% discount rate? If you pay this amount, what is the indicated initial cap rate? Assume that payments occur at the end of the period.

**Problem 2.3**

If you expect that NOI will remain constant at $100,000 forever, what is the value of the building assuming a 12.2% discount rate? If you pay this amount, what is the indicated initial cap rate?

**Problem 2.4**

If you expect the initial $100,000 NOI will grow forever at a 3% annual rate, what is the value of the building assuming a 12.2% discount rate? If you pay this amount, what is the indicated initial cap rate?

**Part 3. Discounted Cash Flow Analysis (DCF)**

**Problem 3.1**

Make a Cash Flow Pro-forma to calculate the Market value of the property.

The investor is planning to sell the property at the end of the 3rd year. Assume that all payments occur at the end of the period.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Residential lease contract | |  | Commercial lease contract | |
| Residential space, sqm | 250 |  | Commercial space, sqm | 150 |
| Rent, Birr per sqm | 10,000 |  | Rent, Birr per sqm | 15,000 |
| Yearly rent increase, % | 4.0% |  | Yearly rent increase, % | 6.0% |
| O&M costs, Birr per sqm | 2,000 |  | O&M costs, Birr per sqm | 2,250 |
| Yearly O&M costs increase, % | 2.0% |  | Yearly O&M costs increase, % | 2.0% |
| Residental vacancy rate; % | 0.0% |  | Commercial vacancy rate; % | 4.0% |
|  |  |  |  |  |
| Growth of NOI (g) after 3rd year | 3.0% |  |  |  |
| Discount rate | 7.0% |  |  |  |