ECO 4368
Sample for Midterm 3
Total Points: 100

Name

**Question 1** (20 points) (WACC)

A company finances its operations with 40 percent debt and 60 percent equity. Its net income is \( I = $20 \text{ million} \) and it has a dividend payout ratio of \( x = 40 \text{ percent} \).

Its capital budget is \( B = $30 \text{ million} \) this year.

The company's cost of debt is 8 percent and the company's tax rate is 40 percent. The company's common stock trades at \( P_0 = $88 \text{ per share} \), and its next dividend of \( D_1 = $4 \text{ per share} \) is expected to grow at a constant rate of 10% a year.

The flotation cost of external equity (if it is issued) is \( F = 10 \text{ percent} \).

What is the company's WACC? (Hint: First you need to see if the company has enough retained earnings to finance the equity portion of the capital budget with internal equity)

**Question 2** (20 points)
Consider a company which uses internally generated equity to finance its capital budget. The company uses IRR method to evaluate projects.

The company has to choose between two projects, Project A and B.

Project A is a 5 year project which requires a date 0 cost of $36,050 and generates $10,000 in each of the following 5 years.

Project B is a 10 year project which requires a date 0 cost of $671,000 and generates $100,000 in each of the following 10 years.

a) Given that the company wants to choose the project with the higher IRR, which project should the company choose? (15 points)

b) Based on your answer in part a, is it possible to determine which project has a higher NPV? (5 points)
Question 3:

The next expected dividend of a company is $D_1 = $4.2. The dividend growth rate is expected to be constant at $g = 4\%$. The company's current stock price is $P_0 = $84.

The company's capital budget is financed with 50\% internal equity and 50\% debt.

The company's cost of debt is $r_d = 8\%$ and the company's tax rate is 40\%.

a) What is the cost of internal equity for this company? (5 points)

b) What is the company’s WACC? (5 points)

c) The company is considering a 10 year project which requires a date 0 cost of $671,000 and generates $100,000 in each of the following 10 years. Should the company undertake this project according to IRR criteria? (10 points)
Question 4 (19 points)

A company evaluates a project which requires an initial investment of $100,000. The project is expected to provide annual cash flows of $80,000 in each of the next 2 years. The company is using the MIRR method to evaluate this investment.

The company's capital structure is 50% internal equity and 50% debt. Cost of internal equity is 10% and the cost of debt is also 10%. The company has a tax rate of 20%.

What is the MIRR for this project and should the company undertake it?
True/False Section (Each true false question is 3 points). Given the figure below, state whether the statements below are true or false.

1. Project A has an IRR which is greater than 7%  
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2. Project B has an IRR of 12%.  
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3. A company using the NPV method should always choose Project B over Project A.  
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4. Project B is more likely to have bigger cash flows in earlier years compared to Project A.  
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5. If the company has a cost of capital equal to 10%, Project A has a negative net present value for the company.  
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6. Project A is more likely to have a shorter payback period compared to Project B.  
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7. If the company has a cost of capital equal to 5%, Project A is better than Project B according to the IRR criteria.  
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