

**Birla Institute of Technology & Science, Pilani**  
**ECON F412/FIN F313 Security Analysis & Portfolio Management**  
**March 13th, 2023 Mid Term Examination, Time 90 Minutes Weightage 35% (70 Marks)**

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1. Assume that you hold a two stock portfolio. You are provided with the following information on your holdings:

Stock	Shares	Price(t)	Price(t+1)
1	15	10	12
2	50	15	16

- i) Calculate the market weights for stock 1 and 2 based on period t values  
 ii) Calculate the HPY for the portfolio (5+5)

2. You have been given the information on two stocks as given below:

<u>Asset (A)</u>	<u>Asset (B)</u>
$E(R_A) = 10\%$	$E(R_B) = 8\%$
$(\sigma_A) = 6\%$	$(\sigma_B) = 5\%$
$W_A = 0.3$	$W_B = 0.7$

$COV_{A,B} = 0.0008$

- i) What is the expected return of a portfolio of two risky assets A and B?  
 ii) What is the standard deviation of this portfolio? (2+5)

3. What are the key determinants of rates of return? Explain

- ii) Risks of Investing in the Stock Market revolves around three factors namely – Volatility, Timing & Overconfidence. Explain their relevance in investing decisions. (5+5)

4 i) A limitation of the Capital Asset Pricing Model is that it does not account for inflation, i.e. the CAPM is likely to underestimate the nominal rate of return required by investors in high inflation periods and overestimate the nominal rate of return required by investors in low inflation periods. Is it true or false? Justify your answer. (5)

ii) We are considering investing in stock X or Y. Their beta values and expected returns are as follows:

	Beta values	Expected returns
Stock X	1.5	18%
Stock Y	1.0	18%

The market return is 15% and the risk-free return is 5%. What investment advice would you give us? (5)

- iii) Although CAPM model for stock investments is extensively used but has many problems that need to be kept in mind while taking investment decisions. What are the key problems in over depending on CAPM model for investing decisions? Explain. (8)

5. ABC Corporation stock currently sells for Rs 60 per share. The initial margin requirement is 50% and the maintenance margin is 30%. If you sell short 300 shares of ABC Corp stock, to what price can the stock rise before you receive a margin call? Also draw the trader's balance sheet for this position from start to margin call. (7)

6. Assume a stock is currently selling for Rs 44.62 per share at the start of 2022. For this company, the analysts' consensus regarding annual growth rate of dividend is 4.6%, and it is likely to remain constant for the foreseeable future. The dividend payment for next year is expected to be Rs 1.74 per share. The company currently has total assets of Rs 18 million, with an asset turnover of 1.2. The firm's total number of shares outstanding is 500,000. The company's ability to pay all its liabilities using its total assets is decent having Rs 1.5 of assets for every dollar of liabilities (or company's total liabilities to total assets ratio is 0.67). The company's current net profit margin is 7%.

A. Considering the above data is going to hold for the foreseeable future, compute whether the stock is currently undervalued or overvalued using dividend discount valuation model. (5)

B. Are the analysts estimate regarding the growth rate of the company in line with the growth rate as per the financial statement data given above. Show calculations to support your answer. (5)

7. Use the data given below for ABC Ltd. and compute the free cash flow to firm for the year 2022. (8)

	2021	2022	<b>Income statement data (yr. 2022)</b>	
			EBITDA	200
Cash	0.00	108.92	Depreciation expense	45
Accounts receivable	0.00	100.00	Interest expense at 7%	15.68
Inventory	60.00	66.00	Income tax expense	41.8
Fixed asset	500.00	500.00	Net Income	97.52
Less: Accumulated depreciation	0.00	45.00		
Total assets	560.00	729.92		
Accounts payable	0.00	50.00		
Long-term debt	224.00	246.40		
Common stock	336.00	336.00		
Retained earnings	0.00	97.52		
Total liabilities and owner's equity	560.00	729.92		

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