MBA (Full Time) – November 2021

MBAFT – 7402: SECURITY ANALYSIS & PORTFOLIO MANAGEMENT

Time : 3 Hours *Maximum Marks : 70*

Answer any **five** *questions. All questions carry* **equal** *marks. You may use Excel but for working* ***notes only****. Make suitable assumptions wherever necessary and State them.*

1. An analyst is trying to value the equity share of a company with the help of the following information:

Earnings before interest and taxes for the current year was rupees 8 crores. The steady-state growth rate expected for the next five years is 12% which fall to the constant level of 6% thereafter. The returns on capital invested during these periods are expected to be 15% and 10% respectively. The company is in the 30% tax bracket. As per the firm's policy, 20% of the financing is done by issuing debentures at a 7% average pre-tax rate of interest. The cost of equity is 12%. The average number of equity shares outstanding is 10 lacs.

i) Compute the value of equity share with the help of the Free Cash Flow to Firm technique.
ii) Confirm the value of equity share using the Free Cash Flow to Equity approach.
iii) When does Free Cash Flow to Firm technique preferred over the Dividend Discount Model and Free Cash Flow to Equity technique?

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2. Given below are the values of NSE national index for 20 trading days:

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
4240	4220	4360	4150	4110	4330	4170	4220	4230	4090
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
4170	4180	4270	4310	4300	4190	4170	4250	4120	4080

Assume that the estimated exponential moving average for the first day was 3900. Answer the following questions:

i) Calculate the Simple Moving Average (SMA) for the 3 days as well as 5 days.
ii) Calculate the Exponential Moving Average (EMA) for the 20 days using:

$$\hat{P}_t = \hat{P}_{t-1} + \alpha(P_{t-1} - \hat{P}_{t-1}) \text{ where } \alpha=0.1$$

iii) What signal does the EMA line give when juxtaposed with the price line?
iv) What would you suggest regarding the choice of no. of days for computing simple moving averages?
v) How is the EMA superior to a simple moving average indicator?
vi) What problems do moving averages throw in predicting the share price movements?
vii) Discuss the related measure of the oscillator in this regard.

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3. A company has assured pension liabilities of ₹ 35 crores, ₹ 50 crores and ₹ 55 crores for the next three years. How much should the company be investing now if it is considering the following recommended bonds for investment purposes?

Bond	**Coupon**	**Yield-To-Maturity**	**Par Value**	**Maturity**
X	10.00%	5.50%	Rs. 1000	1-Year
Y	9.50%	6.00%	Rs. 1000	2-Year
Z	8.00%	6.25%	Rs. 1000	3-Year

What is the strategy you are following in this case? How does this strategy handle the interest rate risk?

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4. GICL has a fixed obligation to pay ₹ 5,00,000 to one of its employees at the end of 5 years from now with 8% interest. The company chooses to fund its obligation with ₹ 5,00,000 of 8% annual coupon bonds, selling at par with 6 years to maturity. Show how the fund will immune itself from interest rate changes to 7% immediately after the purchase of this bond. Also, show the workings when the interest rate changes to 9%.

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5. The following information is available to two investors, X and Y with degrees of risk aversions as 3 and 9:

Security	**Expected Return**	**Standard Deviation**
Stock A	10%	5%
Stock B	16%	15%
Stock C	19%	18%
Correlation Coefficients	A&B A&C B&C	0.5 0.2 0.4

Find out the Optimal risky portfolio weights, return and risk for both the investors in the presence of a risk-free asset class providing a return of 8%. Also, compute the utilities of these investors. How much decrease in utilities shall be observed by these investors in the absence of a risk-free asset class?

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6. Derive the Security Market Line as per the Capital Asset pricing model. What are its assumptions? What are the extensions of the CAPM model suggested to relax these assumptions? What are the empirical evidences regarding the applicability of the CAPM model in real life?

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