INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR

End-Spring Semester Examination 2022-23

Date of Examination: 19 April 2023 Session: FN Duration: 3 hrs. Full Marks: 75

Subject No.: BM40002 Subject: Introduction to Financial Management

Department/Center/School: Vinod Gupta School of Management

Specific charts, graph paper, log book etc., required: N.A.

Special Instructions (if any): If necessary, make and state suitable assumptions without waiting for clarification.

Question # 1

The CMD of NECL requests you to prepare a statement showing the working capital requirements for a level of activity at 1,440 units of production. The following information is available for your calculation:

(A) Cost and price (per unit) information:

Raw material	Rs.90
Direct Labour	Rs.40
Overheads	Rs.75
Selling price	Rs.265

(B) Other information:

i. Overheads include depreciation of Rs.20
ii. Raw materials are in stock, on average one month
iii. Materials are in process, on average ½ month
iv. Finished goods are in stock, on average one month
v. Credit allowed by suppliers, one month
vi. Time lag in payment form debtors, 2 months
vii. Average time-lag in payment of wages, ½ month
viii. Average lead-time in payment of overheads, one month

20 per cent of output is sold against cash. Cash in hand and at bank is expected to be Rs.20,000. It is to be assumed that the production is carried on evenly throughout the year; wages and overheads accrue similarly. Company's working capital borrowing rate is 12% per annum.

[10 Marks]

Question # 2

Galaxy limited needs Rs.20,00,000 for a new project. The sales price and variable cost per unit for the product is expected to be Rs.100 and Rs.40. The annual fixed cost (operating) is expected to be Rs.2,00,000. The company is subject to 30% tax rate. The project is going to be financed by 10% Debt and Equity in 40:60 ratio. The equity shares can be issued at Rs.30 each. The expected sales for the first year is 12,000 units.

a) Find the EBIT and EPS for the first year.
b) Calculate degree of operating leverage (DOL) and degree of financial leverage (DFL) at 12,000 units. Using DOL and DFL as calculated, estimate the EBIT and EPS if unit sales increase by 10%.

c) Suppose the company has alternate financing option of debt-equity of 50:50, what is the indifference EBIT between original plan and alternate plan?

[4+5+6=15 Marks]

Question # 3

Suppose the expected returns of stocks A, B and C are 15%, 18% and 25% respectively while the standard deviations of stocks are 0.40, 0.50 and 0.65 respectively. The correlation between returns of A and B is, 0.50, between B and C, 0.65 and between C and A is 0.80

a) Calculate the expected return and standard deviation of a portfolio that is composed of 30% in stock A, 45% in stock B and rest in Stock C.
b) Suppose you would form a portfolio of only stocks A and B. Find the optimal weight of each stock so that the portfolio risk is the minimum.

[3+3 = 6 Marks]

Question # 4

You want to create a portfolio equally as risky as the market, and you have Rs.10 lakh to invest. You invested in Rs.2 lakh and Rs.2.5 lakh respectively in Stock A ($\beta = 0.80$) and Stock B ($\beta = 1.30$). Rest of the amount needs to be invested in Stock C ($\beta = 1.50$) and a risk free asset. Find the amount to be invested each in Stock C and risk free asset.

[4 marks]

Question # 5

You own 500 shares of stock in Sinha & Co. You will receive Rs.3.00 per share dividend in one year. In two years, Sinha & Co. will pay a liquidating dividend of Rs.50 per share. The required return on Sinha & Co. stock is 15 percent. What is the current share price of your stock (ignoring taxes)? If you would rather have equal dividends in each of the next two years, show how you can accomplish this by creating homemade dividends. Suppose you want only Rs.400 in dividends the first year. What will your homemade dividend be in two years?

[3+4+3 = 10 Marks]

Question # 6

Write short notes on following terms / statement:

a) Pecking order hypothesis
b) Dividend is sticky in nature.

[2.5+2.5 = 5 Marks]

Question # 7

You (an Indian) want to start a business in the Sovereign Republic of Opportunistan. The ruling party encourages foreign investment, and the Central Bank of Opportunistan offers borrowers and investors a rate of 6% which will stay the same in the foreseeable future.

To assess whether long-term business is worthwhile, you have to start off with a 1-year pilot project which will cost $100,000 (Opportunistan dollar, that is).

If everything continues as at present, you predict that at the end of the year, you can build a large factory for $2 million and your business would then pay off at least $150,000 a year for as long as you can foresee. The only cloud on the horizon is an end-of-year election. There is a significant, but unknown, probability that the xenophobic opposition party will seize power, in case all foreign-owned businesses will be shut-down/banned. However, if they lose this election, the opposition party has no chance of coming to power again.

The financial market has faith in the ruling party. In particular, there is very liquid trade in 1-year zero-coupon government bond backed by the ruling party with a face value of $10,000, which is currently trading for $30,000 in the market. If the opposition party comes to power, they will surely declare these bonds defunct for ideological reasons.

Given the information, should you embark on the pilot project? Justify your decisions clearly.

[10 Marks]

Question # 8

Gregory Cham is the CFO of Bear's Chemicals KgaA, a large manufacturer of industrial, commercial, and consumer chemical products in Utopia, a developed country. Bear's Chemicals is privately-owned, and its shares are not listed on any exchange. The CFO has appointed you to perform a standalone valuation of Bear's Chemicals. You have access to the following information to calculate the company's weighted average cost of capital:

- The nominal risk-free rate is represented by the yield on the long-term 10-year Utopian bund, which at the valuation date was 4.5 per cent.
- The average long-term historical equity risk premium in Utopia is assumed at 5.5 per cent.
- Bear's Chemicals' corporate tax is 38 per cent.
- Bear's Chemicals' target debt-to-equity ratio is 0.7. The company is operating at its target debt-to-equity ratio.
- The company's cost of debt has an estimated spread of 225 basis points over the 10-year bund.

The table below supplies additional information on the comparables for Bear's Chemicals:

Comparable cos.	*British Chemicals*	*Kompanie Kemikals, S.A.*	*Rotterdam Chemie N. V.*	*Average*
Country	UK	France	Netherlands	-
Tax-rate	30.0%	30.3%	30.5%	-
Market Cap.	$4,500 mn	$9,300 mn	$7,000 mn	-
Net Debt	$6,000 mn	$8,700 mn	$7,900 mn	-
Debt/Equity	1.33	0.94	1.13	1.13
Beta	1.45	0.75	1.05	1.08

Based on ONLY the information given above, calculate Bear's Chemicals' WACC.

[15 Marks]

End of the Question Paper