Answer all following problems in answer booklets provided

Problem 1 (10 Marks)

Part A (3 Marks)

List three advantages of a company issuing long-term debt, e.g., debentures, compared to raising funds through an issue of shares.

Part B (2 Marks)

List two main disadvantages of the IRR method?

Part C (5 Marks)

Han Ltd supplies chilli paste to large supermarket chains. The company is currently considering scrapping the old processor and investing in a new processor. Information about the investment is as follows:

Initial investment in processor	\$105,000
Operating cash flows over next 5 years:	
Cash receipts	\$50,000
Cash payments	\$20,000
Residual value of processor in 5 years	\$5,000
Required rate of return	8%
Depreciation per annum	\$20,000

a. What is the annual net cash flow for years 1-4? (1 Mark)

b. What is the annual net cash flow in year 5? (1 Mark)

c. What is the net present value of the investment? (3 Marks)

Problem 2 (10 Marks)

Part A (3 Marks)

What is the value of $5000 to be received:

a. Ten years from today when the interest rate is 5% per year? (1 Mark)

b. Ten years from today when the interest rate is 8% per year? (1 Mark)

c. Five years from today when the interest rate is 5% per year? (1 Mark)

Part B (4 Marks)

Assume the total cost of university education will be $200,000 when your child enters university in 18 years' time. You plan to deposit equal amount each year for the next 18 years (the last deposit is at the end of year 18) to save for the education cost. Assume the interest rate is 5% per year.

a. How much do you need to deposit each year if you start the first deposit today? (2 Marks)

b. How much do you need to deposit each year if you start the first deposit in a year's time? (2 Marks)

Part C (3 Marks)

Khoa Ltd is a new high-tech start-up. It does not expect to pay dividends until 10 years from today. At that point the company forecasts earnings per share of $3 and plans to pay out 25% of earnings as dividends. Once the first dividend is paid, Khoa Ltd forecasts perpetual growth in dividends of 4.5% per year.

If Khoa Ltd shareholders require a return of 12% per year, what is the value of Khoa Ltd shares today? (Note: the value of share is the present value of all future dividends)

Problem 3 (10 Marks)

Part A (2 Marks)

Assets with higher standard deviation should earn higher expected return because they are riskier. Is this statement correct? Explain your answer.

Part B (2 Marks)

If the stock market is efficient, then diversification is unnecessary because such an action cannot reduce risk. Is this statement correct? Explain your answer.

Part C (2 Marks)

Suppose Company A stock has a beta of 2, whereas Company B stock has a beta of 1. If the risk-free interest rate is 3% and the market risk premium is 6%, what is the expected return of a portfolio that consists of 40% Company A stock and 60% Company B stock, according to the CAPM?

Part D (2 Marks)

In the last 3 years, the returns for stock A were -10%, 5% and 20%. What is the average annual return? And what is the standard deviation of this stock's return?

Part E (2 Marks)

The market risk premium is 6% and the market expected return is 10%. Stock A is estimated to have a beta of 0.8. What is the cost of equity for this stock?

Problem 4 (10 Marks)

Part A (4 Marks)

The balance sheet and other information for Company X are shown as follows:

Balance Sheet of Company X ($million)

Current Asset	20	Current Liabilities	10
Net Fixed Assets	45	Long-term Debt	20
Investment	15	Preferred Shares	20
		Shareholders' Equity	30
Total	80	Total	80

Other information

Corporate Tax Rate:	30%
Number of ordinary shares on issue	10 million
Share Price	$6
Cost of Debt	6%
Cost of Preference Shares	5%
Cost of Equity	10%

Required:

What is the WACC for Company X under a classical tax system?

Part B (3 Marks)

According to Modigliani and Miller capital structure theorem, explain what happens to cost of equity, cost of debt and weighted average cost of capital for a firm when the leverage is increasing.

Part C (3 Marks)

Explain the trade-off theory and the concept of optimal capital structure.

Useful Formulas

$\text{franking credit} = \left(\frac{div}{1-\tau_c}\right)\tau_c$	$\text{net shareholder tax} = \left(\frac{div}{1-\tau_c}\right)\times(\tau_p - \tau_c)$	$PV = \frac{C}{r}$
$PV = C \times \frac{1}{r}\left[1 - \frac{1}{(1+r)^n}\right]$	$FV = C \times \frac{1}{r}\left((1+r)^N - 1\right)$	$PV = \frac{C}{r-g}$
$PV = C \times \frac{1}{(r-g)}\left(1 - \left(\frac{1+g}{1+r}\right)^N\right)$	$1 + EAR = \left(1 + \frac{APR}{k}\right)^k$	$r_r = \frac{1+r}{1+i} - 1 = \frac{r-i}{1+i} \approx r - i$
$PV = \frac{FV}{1 + \left(r \times \frac{days}{365}\right)}$		
$NPV_\infty = NPV\left(\frac{(1+r)^n}{(1+r)^n - 1}\right)$	$g = (1 - DPR) \times \text{Return on New Investment}$	
$E[R] = \sum_R p_R \times R$	$Var(R_i) = \sigma_i^2 = E\left[(R_i - E[R_i])^2\right] = \sum_R p_R \times (R_{i,R} - E[R_i])^2$	
$SD(R_i) = \sigma_i = \sqrt{Var(R_i)}$	$Var(R) = \frac{1}{T-1}\sum_{t=1}^{T}(R_t - \bar{R})^2$	$r_I = r_f + \beta_I(E[R_{mkt}] - r_f)$
$SD(\text{Avg of IID risks}) = \frac{SD(\text{Individual Risk})}{\sqrt{\text{Number of observations}}}$		$Corr(R_i, R_j) = \rho_{i,j} = \frac{\sigma_{i,j}}{\sigma_i \sigma_j}$
$Cov(R_i, R_j) = \sigma_{i,j} = E\left[(R_i - E[R_i])(R_j - E[R_j])\right]$		$\sigma_p^2 = x_1^2\sigma_1^2 + x_2^2\sigma_2^2 + 2x_1x_2\sigma_{1,2}$
$Cov(R_i, R_j) = \sigma_{i,j} = \frac{1}{T-1}\sum\left[(R_i - \bar{R}_i)(R_j - \bar{R}_j)\right]$		$\sigma_p^2 = \sum_i x_i \sigma_{i,p}$
$\sigma_p^2 = \frac{1}{n}(\text{Average Variance}) + \left(1 - \frac{1}{n}\right)(\text{Average Covariance})$		$\sigma_p^2 = \sum_i \sum_j x_i x_j \sigma_{i,j}$
$\beta_i = \frac{\sigma_i \rho_{i,mkt}}{\sigma_{mkt}} = \frac{\sigma_{i,mkt}}{\sigma_{mkt}^2}$	$E[R_s] = r_f + \sum_{n=1}^{N}\beta_s^{Fn}(E[R_{Fn}] - r_f)$	$r_{wacc} = \frac{E}{E+D}r_E + \frac{D}{E+D}r_D(1 - \tau_C)$

END OF EXAMINATION