BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF COMMERCE

DEPARTMENT OF BANKING AND FINANCE

JUN 2023

CORPORATE FINANCE 1 (BS203)

FINAL EXAMINATION

DURATION: THREE HOURS

INSTRUCTIONS TO CANDIDATES:

1) Answer any **FOUR** questions.

2) Candidates will need non-programmable calculators.

3) Each question carries equal marks as indicated in brackets.

4) Electronic data saving devices are not allowed into the examination halls.

QUESTION ONE

a) How much must you deposit in the bank account that pays 3% interest compounded monthly in order to be worth $1,0000 in 3 years? (3)

b) You want to travel to Canada to visit friends when you graduate three years from now. The trip is expected to cost a total of $20,000 at that time. You have deposited $12,000 in your account paying an interest of 6% annually, maturing in three years from now. Further, you have inherited a lump sum and you plan to use it to finance the balance. If you are going to put this money in an investment earning 10% per year over the next three years, how much must the lump sum be so that you can visit your friends at the end of three years? (6)

c) Jones wishes to retire in 30 years' time and has estimated that she will require a monthly pension income of $12 000 per month for the 20 years after retirement. Jones will contribute to a retirement fund that will enable her to take out a monthly pension of $12 000 after retirements. The retirement fund is currently earning 9% per annum interest compounded monthly and this level of return is expected to remain unchanged for the next 50 years. Determine the monthly contribution that Jones is required to make to the fund over the next 30 years. (10)

d) Barclays Bank pays interest of 23% compounded annually. CBZ Bank pays 22% compounded quarterly. FBC Bank pays 21.5% compounded monthly and ABC Bank pays 21% compounded daily. Assuming a 365 day year, which bank pays the highest effective interest? (6)

[25 MARKS]

QUESTION TWO

a) Company XYZ is a textile manufacturing company that has enjoyed considerable success both nationally and internationally in recent years. As a result the company has accumulated a huge sum of money that is available for expenditure on its future developments. The board of directors is currently considering two projects for spending the funds available.

The first project (Project A) is to expand its production of yarn. The plant is expected to cost $800 million and the plant will generate cash flows of $230 million in year 1, $240 million in year 2, $230 million in year 3 and $350 million in year for 4 years. By the end of the fourth year, the plant is expected to have $0 residual value.

The second Project (Project B) would be to launch a new product from their innovative efforts. They estimated that they would need to spend about $600 million to invest in some equipment to manufacture the new product. As for future cash flows, they expect to sell their product at $150 million in year 1, $250 million in year 2, $300 million in year 3 and $200 million in year for 4 years. By the end of the fourth year, their product in its current form is likely to be obsolete and the equipment is expected to have $0 residual value.

The Company's cost of capital is 10%.

Required:

i. Calculate the Payback Period for each project. (2)

ii. Calculate the Net Present Value (NPV) of each project. (3)

iii. Calculate the Internal Rate of Return (IRR) for each project. (3)

iv. Calculate the Modified Internal Rate of Return (MIRR) for each project. (3)

v. Determine the project(s) that will be chosen if the projects are independent and divisible assuming a capital budget limit of $1000 million. (2)

b) Consider a stock with dividends that are expected to grow at 20% per year for four years, after which they are expected to grow at 5% per year, indefinitely. The last dividend paid was $1.00, and K_e = 10%. Calculate the value of this stock using the multistage growth model. (5)

c) Consider a bond which has a current value of $1,081, a face value of $1,000, a coupon rate of 10% (paid annually) and five years remaining to maturity. The bond is redeemable at par.

Required:

i. What is the bond's yield to maturity today? (5)

ii. If the bond's yield to maturity does not change, what is its value one year from today? (2)

[25 MARKS]

QUESTION THREE

a) Goal Ltd. is considering issuing new equity stock and is evaluating the cost of equity capital. Goal Ltd. expects a risk free rate of 5% and a return on the market of 10%. If the Goal's Beta is 2.0, what is the expected cost of equity? (4)

b) H&M Ltd has the following capital structure;

Debt	25%
Preferred stock	15%
Common stock	60%

H&M Ltd paid a dividend of $4.5 per share last year. Its stock is currently selling for $35 per share. Investors expect future earnings and dividends to grow at a constant rate of 4%. H&M can obtain new financing in the following ways;

a. New irredeemable preferred stock with a dividend of $2 per share can be sold to the public at a price of $20 per share.

b. $100, 8% irredeemable debentures quoted at 82%

Required;

i. Calculate H&M's Weighted Average Cost of Capital (WACC). (8)

ii. H&M has the following investment opportunities as shown in table 4 below.

Table 4

Project	Cost $	IRR(internal rate of return) %
1	10,000	17.4
2	20,000	16
3	10,000	14.2
4	20,000	13.7
5	10,000	12

Which projects should be accepted? Justify your answer. (3)

c) D Ltd. has $10 million, 20-year, 9% coupon bonds with a par value of $100 in issue. Interest is paid annually on 31 December. The ex-interest market value of the stock at the beginning of the year is quoted at 96% and the stock is redeemable at a par in 20 years' time. The company pays corporation tax of 40%.

D Ltd. is contemplating the issuance of a 10% irredeemable preferred stock that is expected to sell for $87-per share value. The cost of issuing and selling the stock is expected to be $5 per share.

In additional D Ltd.'s investment advisors and its own analysts indicate that the risk-free rate, r_f, equals 7%; the firm's beta, b, equals 1.5; and the market return, r_m, equals 11%.

Required:

i. Given D Ltd.'s optimal capital structure of; debt 40%, preferred stock 10% and common stock 50%, calculate the Weighted Average Cost of Capital (WACC) of the firm. (5)

ii. Suppose the firm is considering taking on a warehouse renovation costing $50 million that is expected to yield a cash flow of $12 million per year for six years. Using the NPV technique, should the firm take on the warehouse renovation? (5)

[25 MARKS]

QUESTION FOUR

a) Explain the factors that influence capital structure decisions of businesses in practice. (6)

b) Discuss the Net Income views on the capital structure debate. (6)

c) Alice is considering two investments and can only invest in either the share of Delta Corporation or in the share OK Zimbabwe Ltd. The following information shown in table 1 below regarding returns and probability distribution is relevant.

Table 1

Delta Corporations' share		**OK Zimbabwe Ltd.'s Share**	
Probability	**Return**	**Probability**	**Return**
0.20	15%	0.15	0%
0.50	20%	0.30	10%
0.30	10%	0.35	20%
		0.20	30%

Required:

i. Calculate the expected return of both shares. (2)
ii. Determine the standard deviation of the returns of both shares. (4)
iii. Estimate the co-efficient of variation of each share. (6)

d) Which share would you recommend? Justify your answer. (1)

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QUESTION FIVE

a) In the context of Capital Asset Pricing Model (CAPM), discuss the relevant measure of risk. (3)

b) Assume ABC Ltd.'s expected return is 15% with a standard deviation of 25%. Its correlation with the market is 0.1. The expected return on the market portfolio is 15% with the standard deviation of 5%.

Required:

i. Calculate the beta of ABC Ltd. (2)
ii. Determine the risk free rate of return. (3)

c) You are given the probability distribution of returns for stock A and stock B in Table 1 below;

Table: 1

Probability	Returns on stock A	Returns on stock B
0.1	-10%	6%
0.3	0%	8%
0.3	8%	0%
0.2	12%	-5%
0.1	20%	17%

Required:

i. Compute the expected returns of investing in stock A and stock B (2)

ii. Compute the standard deviations of the returns on stock A and stock B. (4)

iii. Compute the covariance between the returns for stock A and stock B. (4)

iv. Compute the correlation coefficient of returns of stock A and stock B. Interpret the correlation coefficient got. (4)

v. Assume you have $100,000 to invest and you decide to allocate 30% of the funds in stock X and 70% of the funds in stock Y. Find the expected return and standard deviation of this portfolio. (3)

QUESTION SIX

ABC Ltd has an optimal capital structure of debt 20%, preference stock 20% and common stock 60%. Expected net income this year is $20 million and dividend payout ratio is 25%. The current after tax cost debt is 14%, the cost of preferred stock is 24% and the cost of equity is 28%. The company can get new financing of $2 million from debt and $4 million from preferred stock without upsetting the capital structure. Debt in the range of 2 million to $2.5 million will carry an after tax cost of 20%, while debt over $2.5 million will carry an after tax cost of 24%. New preference stock above $4 million will attract a cost of 28%. New common stock will attract a cost of 30% between $5 million and $8 million and 34% above $8 million.

Project	**A**	**B**	**C**	**D**	**E**
Cost ($ millions)	5	5	5	6	10
IRR (%)	18	20	24	28	32

a) Find the breaking points in the marginal capital structure schedule. (6)

b) Calculate the Weighted Average Cost of Capital (WACC) in the interval between each break in the WMCC schedule. (6)

c) Construct a well labelled graph showing the MCC and the investment opportunities schedule (IOS). (10)

d) Which Projects would you choose? Justify your answer. (3)

[25 MARKS]