01. Sabeeb Limited company after tax cost of capital of the specific sources is as follow:-

Cost of debt capital	7%
Cost of preference share capital	14%
Cost of equity capital	17%

The following is the capital structure:

Sources	**Face value (TK. In lac)**	**Market value (Tk. In lac)**
Debt capital	300	370
Preference share capital	400	230
Cost of equity capital	300	650
Total	**1000**	**1250**

Calculate the weighted average cost of capital using: (Assuming personal tax rate is 40%)

- Book value weight
- Market value weight

02. As a financial analyst of Sameen Limited Company, you are required to determine the weighted average cost of capital of the company using: (a) Book value weight & (b) Market value weight.

The company's present book value structure and other information are given below:

Sources of capital	**Amount (Tk.)**
14% Debentures (Tk. 100 per debenture)	8,00,000
15% Preference Stock (Tk. Per share)	4,00,000
Equity shares (Tk. 10 per share)	8,00,000
Total capital	**20,00,000**

All the securities are traded in the capital market. Recent prices are: Debentures Tk. 110 per debenture; Preference shares Tk. 120 per share; Equity share Tk. 22 per share. Anticipated external financing opportunities are:

i. Tk. 100 per debenture redeemable at par, 10-year maturity, 4% flotation cost.

ii. Tk. 100 per Preference shares redeemable at par, 10-year maturity, 5% flotation cost.

iii. Equity shares: Tk. 2 flotation cost per share.

In addition, the dividend expected on the equity share at the end of the year is Tk. 2 per share, the anticipated growth rate in dividend is 7% and the firm has the practice of paying all of its earnings in the form of dividend. The corporate tax rate 40 percent

03. Consider the following capital structure of company-

Source of capital	Amount
Common stock capital of Tk.100	10,00,000
Retained earnings	5,00,000
15% Preferred stock of Tk.100 par value	5,00,000
16% Preferred stock of Tk. 1000 par value	10,00,000
14% Debenture of Tk. 3000 par value	10,00,000
13% Debenture of Tk. 2000 par value	10,00,000
Total	50,00,000

Additional Information:

i. The company paid dividend of Tk. 20 par share which is expected to grow at the rate 5%. Market price of the share is Tk. 200 and flotation cost is Tk. 5 par share.

ii. Corporate tax rate is 25% and personal income tax rate is 20%.

iii. The market price of 15% preferred stock is Tk.110 and flotation cost is Tk.2 par share.

iv. The duration of 16% preferred stock is 5 years. Market price of the share is Tk. 1100 and flotation cost is 1% of market price.

v. Market price of 14% debenture is Tk. 2800 and flotation cost is 1% on par value.

vi. 13% debenture issued for 7 years. Its market price is Tk. 2100 and flotation cost Tk. 15 par debenture.

You are required to calculate WACC of the company.

04. Suppose stock in Watta Corporation has a beta of 0.80. The market risk premium is 6% and the risk free rate is 6%. Watta's last dividend was Tk. 1.20 per share, and the dividend is expected to grow at 8% indefinitely. The stock currently sells for Tk. 45 per share. What is watta's cost of equity capital?

In addition to the watta has a target debt equity ratio of 50%. Its cost of debt is 9% before taxes. If the tax rate is 35%, what is the WACC?

05. Following is the capital structure of Safin and co.:-

Sources of capital	**Amount in lakh**	**Cost of capital**
Common stock capital	40	14%
Retained earnings	20	14%
Preferred stock capital	10	12%
Debt capital	30	10%
Total	**100**	

Corporate tax rate is 40% and personal tax rate of common stockholders is 30%. Calculate the WACC of the company.

06. D-lab corporation is considering its financing through issuance of debt. Now you are required to calculate the cost of debt for each of the following situations where corporation issues Tk. 1,000 face value bonds with maturity of 20 years. The bonds are sold for Tk. 1,000 each:

i. The bonds pay 9% interest annually, flotation costs are 2% and the marginal tax rate is 40%.

ii. The bonds pay 8% interest annually, flotation costs are 3% and the marginal tax rate is 40%.

iii. The bonds pay Tk. 100 interest annually, flotation costs are 2% and the marginal tax rate is 40%.

07. The earnings, dividends, and stock price of Talukdar technologies Inc. are expected to grow at 7% per year in the future. Talukdar's common stock sells for Tk.23 per share, its last dividend was Tk. 2.00, and the company will pay a dividend of Tk. 2.14 at the end of the current year:

i. Using the discounted cash flow approach, what is its cost of retained earnings?

ii. If the firm's beta is 1.6, the risk free rate is 9%, and the average return on the market is 13%, what will be the firm's cost of equity using the CAPM Approach?

8. A company has on its books the following amounts and specific costs of each type of capital.

Type of Capital	**Book Value**	**Market Value**	**Specific Costs (%)**
Debt	4,00,000	3,80,000	5
Preference	1,00,000	1,10,000	8
Equity	6,00,000	9,00,000	15
Retained Earnings	2,00,000	3,00,000	13
	13,00,000	16,90,000	

Determine the weighted average cost of capital using:

- Book value weights, and
- Market value weights.

9. From the following information supplied to you, determine the appropriate weighted average cost of capital, relevant for evaluating long-term investment projects of the company:

Cost of equity	12%
After-tax long-term debt	7%
After-tax cost of Short-term loans	4%

Source of equity	Book value (Amount in Tk.)	Market value (Amount in Tk.)
Equity	5,00,000	7,50,000
Long-term debt	4,00,000	3,75,000
Short-term debt	1,00,000	1,00,000

10. The ABC steel company has two divisions: Health foods and Specialty metals. Each division employs debt equal to 30 percent and preferred stock equal to 10 percent of its total requirements, with equity capital used for the remainder. The current borrowing rate is 15% and the company's tax rate is 40%. At present preferred stock can be sold yielding 12%. The beta values of 1.10 for Health foods and 1.5 for Specialty metals have been identified. The risk free rate is currently 12% and the expected return on the market portfolio is 17%.

Using the CAPM approach, what weighted average required returns on the investment would you recommend for these two divisions?

11. If an investor is willing to pay Tk. 200 per share for the preferred stock issued by ABC enterprise that pays dividend of Tk. 25. ABC has to incur some expenditure for this issuance, which is 6% of its initial price. What will be the cost of the security?

12. Determine the cost of equity if the required rate of return on a market index is about 25% and the tax-free interest rate is 15%. In addition, the stock is judged to be about 20% riskier than the market index.

13. The company's present capital structure of S & N co. is as follows:

Sources of capital	Amount (Tk.)
8% Debentures	1,00,000
12% Preference Stock	50,000
Common shares	1,20,000
Retained Earnings	30,000
Total capital	**3,00,000**

The common shares of the company sell for Tk. 30 each. It expected that the company will pay next year a dividend of tk. 2.5 per share that will grow at 4% forever. The market price of preference share is Tk. 96 (par value Tk. 100). A flotation cost of 5% of market price would be incurred to the issue of all kinds of shares. The company's marginal tax rate is 40%. Compute the cost of capital of S & N Company.

14. The BD Food Ltd. has the following capital structure which indicates the optimum capital structure:

Sources of capital	Amount (Tk.)
15% Debentures (Tk. 2500 per debenture)	15,00,000
14% Preference Stock (Tk. 1000 Per share)	10,00,000
Common shares (Tk. 100 per share)	20,00,000
Retained Earnings	5,00,000
Total capital	**50,00,000**

Other information:

a. Current market price of common stock is Tk. 150. Current Year Company declares a dividend of tk.15 per shares. The company expects that this dividend will increase at 10% annual rate forever.

b. The company preferred stock is redeemable after 5 years at 10% premium. The flotation cost of preferred stock is 20% of sales price. Currently the preferred stock sells at Tk. 1,200.

c. The maturity period of debentures is 10 years. After 10 years the debenture is redeemable at 12% premium. But currently sales is 5% discount. The flotation cost of debenture is 1.5% of its face value.

d. The corporate tax rate is 40% and personal rate is 25%. You are required to calculate the overall cost of capital as well as specific cost of capital of the firm.

15. The Max company was recently formed to manufacture a new product. It has the following capital structure in market value terms:

Sources of capital	**Amount (Tk.)**
Debentures	60,00,000
Preference Stock	20,00,000
Common shares (3,20,000 shares)	80,00,000
Total capital	**1,60,00,000**

The company has a marginal tax rate of 40%. A study of publicity held companies in this line of business suggests that the required return on equity is about 17%. The Manx company's debt currently yielding 13% and its preferred stock is yielding 12%. Compute the firm's present weighted Average Cost of Capital.

16. Krogh Company last dividend per share was Tk.1; that is, D_0 = Tk.1. The stock sells for Tk.20 per share. The expected growth rate is a constant 5%. Calculate the firm's cost of retained earnings using the DCF method.

17. You are required to calculate WACC by using the following information's:

Equity share (Tk.10 each)	10,00,000
Preferred stock (Tk.100 each)	5,00,000
Debenture (Tk.100 each)	5,00,000
Total	**20,00,000**

Other information's:

i. Equity share Tk.2 per share flotation cost. Sales price Tk.22. dividend of equity share is Tk.2.5, expected growth rate 7%.

ii. Preferred stocks are redeemable at par, 10 years maturity, 14% dividend rate, 4% flotation cost. Selling price Tk.120.

iii. Debentures are redeemable at par, 10 years maturity, 13% coupon rate, Sales price Tk.110. corporate tax rate is 40%.

18. The following tabulation gives earning per share figures for Hunt Manufacturing during the preceding ten years. The firm's common stock, 140,000 shares out-standing, is now selling for Tk. 50 a share, and expected dividend for the coming year (1996) is 50% of EPS for the year. Investors expect past trends to continue, so 'g' may be based on the historical earnings growth rate.

Year	EPS	Year	EPS
1986	Tk.2.00	1991	2.94
1987	2.16	1992	3.18
1988	2.33	1993	3.43
1989	2.52	1994	3.70
1990	2.72	1995	4.00

The current interest rate on new debt is 8%. The firm's marginal tax rate is 40%. The firm's market value capital structure, considered to be optimal, is as follows:

Sources	Amount (in Tk.)
Debt	Tk.3,000,000
Common equity	7,000,000
Total capital	= Tk.10,000,000

a. Calculate the firm's after-tax cost of new debt and of common equity comes only from retained earnings. Calculate the cost of equity assuming constant growth that is $\overline{K_S} = \mathbf{D_1/P_0 + g = K_S}$
b. Find the firm's WACC, assuming no common stock is sold.
c. How much can be spent for net new capital investment before external equity must be sold? (Assume no depreciation cash flow.)
d. What is the WACC beyond the retained earnings point if new common stock can be sold to the public at Tk. 50 a share to net the firm Tk. 45 a share?

19. A public limited company has the following capital structure:

Common share (40,000 shares)	4,00,000
10% Preferred share	1,00,000
14% Debentures	3,00,000
Total	**8,00,000**

The share of the company sells for Tk.200. if is expected that the company will pay next year a dividend of Tk.20 per share which will grow at 7% forever. Assume a 30% tax rate.

i. Compute weighted Average Cost of Capital based on existing capital structure.

ii. Compute the new WACC if the company raises an additional Tk.2,00,000 debt by issuing 15% debenture. This would result in increasing the expected dividend to Tk.30 and leave the growth rate unchanged, but the price of share will fall to Tk.150 per share.

20. The ABC ltd. was recently formed to manufacture a new product. It has the following capital structure:

Sources of capital	**Amount (Tk.)**
14% Debentures	12,00,000
12% Preferred Stock	4,00,000
Common stock	14,00,000
Total capital	**30,00,000**

i. Currently the common stock sales for Tk. 250. It is estimated that the company will pay a dividend at Tk. 20 per share and this dividend is expected to grow at a 5% rate forever. Corporate tax rate of the company is 40%. Calculate the weighted average cost of capital of the firm.

ii. Now it is assume that the investment banker for the company informed the firm that it could raise and additional Tk. 10,00,000 in debt by issuing 15% debentures. This could result in expected dividend of Tk. 25 per share and leave the growth rate unchanged. But added risk would cause the price of share fall of Tk. 230. What would be the new weighted average cost of capital?

21. Renata Ltd. has the following capital structure alone with its additional information:

Sources	**Book Value (Tk.)**	**Market Value (Tk.)**
Equity capital	1,00,000	2,20,000
14% Bonds	50,000	80,000
15 % Preferred stock	40,000	60,000
Retained Earnings	10,000	20,000
Total	**2,00,000**	**3,80,000**

The common stocks are sold at Tk.120 per shares which are paying a current dividend of Tk.10 per share. The dividend is expected to grow at a 7% rate forever. The flotation cost is 4%. The corporate tax rate is 30%. Calculate the WACC for Renata ltd. according to the book value as well as the market value weights.

22. Mohit and Mohin Ltd. have the following capital structure which indicates the optimum capital structure:

Sources of capital	Amount (Tk.)
Common shares (Tk. 100 per share)	4,00,000
12% Debentures (Tk. 2500 per debenture)	3,00,000
14% Preference Stock (Tk. 1000 Per share)	2,00,000
Retained Earnings	1,00,000
Total capital	**10,00,000**

Other information:

a. Current market price of common stock is Tk. 150. Current Year Company declares a dividend of tk.15 per shares. The company expects that this dividend will increase at 10% annual rate forever and flotation cost is Tk.10.

b. The company preferred stock is redeemable after 5 years at 10% premium. The flotation cost of preferred stock is 2% of sales price. Currently the preferred stock sells at Tk. 1,200.

c. The maturity period of debentures is 10 years. After 10 years the debenture is redeemable at 4% discount. But currently sales are 5% premium. The flotation cost of debenture is 1.5% of its face value. The corporate tax rate is 40% and personal rate is 25%.

   You are required to calculate the overall cost of capital of the firm using book value weights.

23. On January 1, the total market value of the Powell Company was Tk. 60 millions. During the year, the company plans to raised and invest Tk. 30 million in new projects. The firm's present market value capital structure, shown below, is considered to be optimal. Assume that there is no short-term debt.

Sources	**Amount (in Tk.)**
Debt	Tk.30,000,000
Common equity	30,000,000
Total capital	= Tk.60,000,000

New bonds will have an 8% coupon rate, and they will be sold at par. Common stock, currently selling at Tk. 30 per share, can be sold to net the company Tk. 27 a share. Stock holder's required rate of return is estimated to be 12%, consisting of a dividend yield of 4% and an

expected constant growth rate of 8%. (The next expected dividend is Tk. 1.20, so Tk. 1.20/Tk. 30 = 4%). Retained earnings for the year are estimated to be Tk. 3 million. The marginal corporate tax rate is 40%. (Assume no depreciation cash flow.)

a. To maintain the present capital structure, how much of the new investment must be financed by common equity?
b. How much of the needed new common equity funds must be generated internally? Externally?
c. Calculate the cost of each of the common equity components.
d. At what level of capital expenditures will the firm's WACC increases?
e. Calculate the firm's WACC using (1) the cost of retained earnings and (2) the cost of new equity.

24. Lancaster Engineering Inc. (LEI) has the following capital structure, which it considers to be optimal:

Debt	25%
Preferred stock	15
Common equity	60
……..	
100%	

LEI's expected net income this year is $34,285.72; its established dividend payout ratio is 30%; its federal-plus-state tax rate is 40%; and investors expect future earnings and dividends to grow at a constant rate of 9%. LEI paid a dividend of $3.60 per share last year, and its stock currently sells for $54.00 per share.

LEI can obtain new capital in the following ways:

- **Preferred:** New preferred stock with a dividend of $11.00 can be sold to the public at a price of $95.00 per share.
- **Debt:** Debt can be sold at an interest rate of 12%.

a) Determine the cost of each capital component.
b) Calculate the WACC.

25. You are supplied the following data of Rafi ltd.

Source	Amount	Ratio	Cost after tax	WACC
Debt	3,00,000	0.30	4%	1.20%
Preference share	1,00,000	0.10	9%	0.90%
Ordinary share	6,00,000	0.60	12%	7.20%
	10,00,000	1.00		9.30%

Rafi ltd. plans to raise Tk.4,00,000 during the current year to finance its investment project.

Required:

a. How much amount should be raised from the each source to keep the WACC unchanged?
b. Show the marginal cost of capital after raising fund?

26. Mrs. Haque wants to expand its total assets by 50% by the end of the current year. You have been given below the company's capital structure which it considers to be optimal:

Sources	Amount (Tk.)
8% debentures	4,00,000
9% preference shares	1,00,000
Equity capital	5,00,000
Total	**10,00,00**

New debentures would be sold at 14% coupon rate and will be sold at par. Preference shares will have a 15% rate and will also be sold at par. Equity shares currently selling at tK.100 can be sold to net the company of Tk.95 per share. The shareholders required rate of return is to be 17% consisting of a dividend yield of 10% and an expected growth rate of 7%. Retained earnings for the year are estimated to be Tk.50,000. The corporate tax rate is 50%.

Requirements:

a. Assuming all assets expansion is included in the capital budget. What is the required amount of capital budget?

b. How much of the capital budget must be financed by issue of new equity shares to maintain the optimum capital structure?

c. Calculate the cost of a new issue of equity shares and retained earnings.

d. Calculate the WACC using marginal weights.