

# HOMEWORK SECTION - Cost of Capital

- Q1.** Five years ago, Sona Limited issued 12 per cent irredeemable debentures at Rs. 103, at Rs. 3 premium to their par value of Rs. 100. The current market price of these debentures is Rs. 94. If the company pays corporate tax at a rate of 35 per cent CALCULATE its current cost of debenture capital?
- Q2.** A company issued 10,000, 10% debentures of Rs. 100 each at a premium of 10% on 1.4.2017 to be matured on 1.4.2022. The debentures will be redeemed on maturity. COMPUTE the cost of debentures assuming 35% as tax rate.
- Q3.** A company issued 10,000, 10% debentures of Rs. 100 each at par on 1.4.2012 to be matured on 1.4.2022. The company wants to know the cost of its existing debt on 1.4.2017 when the market price of the debentures is Rs. 80. COMPUTE the cost of existing debentures assuming 35% tax rate.
- Q4.** Institutional Development Bank (IDB) issued Zero interest deep discount bonds of face value of Rs. 1,00,000 each issued at Rs. 2,500 & repayable after 25 years. COMPUTE the cost of debt if there is no corporate tax.  
Hint: Use the IRR method. Such questions will usually not come in exams. But just practice.
- Q5.** A company issued 10,000, 15% Convertible debentures of Rs. 100 each with a maturity period of 5 years. At maturity, the debenture holders will have an option to convert the debentures into equity shares of the company in the ratio of 1:10 (10 shares for each debenture). The current market price of the equity shares is Rs. 12 each and historically the growth rate of the shares is 5% per annum. Compute the cost of debentures assuming a 35% tax rate.
- Q6.** XYZ & Co. issues 2,000 10% preference shares of Rs. 100 each at Rs. 95 each. CALCULATE the cost of preference shares.
- Q7.** If R Energy is issuing preferred stock at Rs. 100 per share, with a stated dividend of Rs. 12, and a floatation cost of 3% then, CALCULATE the cost of preference share?
- Q8.** XYZ Ltd. issues 2,000 10% preference shares of Rs. 100 each at Rs. 95 each. The company proposes to redeem the preference shares at the end of 10<sup>th</sup> year from the date of issue. CALCULATE the cost of preference share?
- Q9.** A company has paid a dividend of Rs. 1 per share (of face value of Rs. 10 each) last year and it is expected to grow @ 10% every year. CALCULATE the cost of equity if the market price of share is Rs. 55.
- Q10.** Face value of equity shares of a company is Rs. 10, while current market price is Rs. 200 per share. Company is going to start a new project, and is planning to finance it partially by new issue and partially by retained earnings. You are required to CALCULATE cost of equity

shares as well as cost of retained earnings if issue price will be Rs. 190 per share and floatation cost will be Rs. 5 per share. Dividend at the end of first year is expected to be Rs. 10 and growth rate will be 5%.

**Q11.** ABC Ltd. has the following capital structure, which is considered to be optimum as on 31st March, 2022.

	(Rs.)
14% Debentures	30,000
11% Preference shares	10,000
Equity Shares (10,000 shares)	1,60,000
	2,00,000

The company share has a market price of Rs. 23.60. Next year's dividend per share is 50% of the year 2021 EPS. Following is the uniform trend of EPS for the preceding 10 years which is expected to continue in future:

Year	EPS (Rs.)	Year	EPS (Rs.)
2012	1.00	2017	1.61
2013	1.10	2018	1.77
2014	1.21	2019	1.95
2015	1.33	2020	2.15
2016	1.46	2021	2.36

The company issued new debentures carrying 16% rate of interest and the current market price of debenture is Rs. 96.

Preference shares of Rs. 9.20 (with annual dividend of Rs. 1.1 per share) were also issued. The company is in the 50% tax bracket.

- (A) CALCULATE after tax:
- Cost of new debt
  - Cost of new preference shares
  - Cost of new equity share (assuming new equity from retained earnings)
- (B) CALCULATE marginal cost of capital when no new shares are issued.
- (C) DETERMINE the amount that can be spent for capital investment before new ordinary shares must be sold. Assuming that the retained earnings for next year's investment is 50 percent of 2021.
- (D) COMPUTE marginal cost of capital when the fund exceeds the amount calculated in (C), assuming new equity is issued at Rs. 20 per share?

**Q12.** Gamma Limited has 5,00,000, Rs. 1 ordinary shares whose current ex-dividend market price is Rs. 1.50 per share. The company has just paid a dividend of 27 paise per share, and dividends are expected to continue at this level for some time. If the company has no debt capital, COMPUTE the weighted average cost of capital?

**Q13.** The following details are provided by the GPS Limited

	(Rs.)
Equity Share Capital	65,00,000
12% Preference Share Capital	12,00,000
15% Redeemable Debentures	20,00,000
10% Convertible Debentures	8,00,000

The cost of equity capital for the company is 16.30% and income tax rate for the company is 30%. You are required to CALCULATE the WACC of the company.

**Q14.** Rupa Ltd.'s EBIT is Rs. 5,00,000. The company has 10%, Rs. 20 lakh debentures. The equity capitalization rate ( $K_e$ ) is 16%.

You are required to CALCULATE:

- (i) Market value of equity and value of firm
- (ii) Overall cost of capital

**Q15.** Indra Ltd. has an EBIT of Rs. 1,00,000. The company makes use of both the debt and equity capital. The firm has 10% debentures of Rs. 5,00,000 and the firm's equity capitalization rate is 15%.

You are required to COMPUTE:

- (i) Total value of the firm
- (ii) Overall cost of capital.

**Q16.** DETERMINE the optimal capital structure of a company from the following information:

Options	Cost of Debt $K_d$ in %	Cost of Equity ( $K_e$ ) in %	Percentage of Debt on total value
1	11.0	13.0	0.0
2	11.0	13.0	0.1
3	11.6	14.0	0.2
4	12.0	15.0	0.3
5	13.0	16.0	0.4
6	15.0	18.0	0.5
7	18.0	20.0	0.6

**Q17.** Alpha Ltd. and Beta Ltd. are identical except for capital structure. Alpha Ltd. has 50 per cent debt and 50 per cent equity, whereas Beta Ltd. has 20 per cent debt and 80 per cent equity (All percentages are in market-value terms). The borrowing rate for both the companies is 8 percent in a no-tax world, and capital markets are assumed to be perfect.

- (a) (i) If you own 2 percent of the shares of Alpha Ltd., DETERMINE your return if the company has net operating income of Rs. 3,60,000 and the overall capitalisation rate of the company ( $K_0$ ) is 18 per cent.
- (ii) CALCULATE the implied required rate of return on equity of Alpha Ltd.

- (b) Beta Ltd. has the same net operating income as Alpha Ltd as well as the same capitalization rate..
- CALCULATE the implied required rate of return on equity of Beta Ltd.
  - ANALYSIS: Why does it differ from that of Alpha Ltd.

**Q18.** Blue Ltd., an all equity financed company is considering the repurchase of Rs. 275 lakhs equity shares and to replace it with 15% debentures of the same amount. Current market value of the company is Rs. 1,750 lakhs with its cost of capital of 20%. The company's Earnings before Interest and Taxes (EBIT) are expected to remain constant in future years. The company also has a policy of distributing its entire earnings as dividend.

Assuming the corporate tax rate as 30%, you are required to CALCULATE the impact on the following on account of the change in the capital structure as per Modigliani and Miller (MM) Approach:

- Market value of the company
- Overall Cost of capital
- Cost of equity

**Q19.** One-third of the total market value of Sanghmani Limited consists of loan stock, which has a cost of 10 per cent. Another company, Samsui Limited, is identical in every respect to Sanghmani Limited, except that its capital structure is all-equity, and its cost of equity is 16 per cent. According to Modigliani and Miller, if we ignore taxation and tax relief on debt capital, COMPUTE the cost of equity of Sanghmani Limited?

**Q20.** The following data relates to two companies belonging to the same risk class:

Particulars	A Ltd.	B Ltd.
Expected Net Operating Income	Rs. 18,00,000	Rs. 18,00,000
12% Debt	Rs. 54,00,000	-
Equity Capitalization Rate	-	18

**REQUIRED:**

- Determine the total market value, Equity capitalization rate and weighted average cost of capital for each company assuming no taxes as per M.M. Approach.
- Determine the total market value, Equity capitalization rate and weighted average cost of capital for each company assuming 40% taxes as per M.M. Approach.