

**TOPICS : Cost of Capital, Capital Budgeting, Risk Analysis in Capital Budgeting**

**NOTES: (1) WORKING NOTES SHOULD FORM PART OF ANSWERS.**

**(2) NEW QUESTION SHOULD BE ON NEW PAGE**

**QUESTION NO.1**

**(10 MARKS)**

The cash flows of two mutually exclusive Projects are as under:

	t <sub>0</sub>	t <sub>1</sub>	t <sub>2</sub>	t <sub>3</sub>	t <sub>4</sub>	t <sub>5</sub>	t <sub>6</sub>
Project 'P'(Rs. )	(40,000)	13,000	8,000	14,000	12,000	11,000	15,000
Project 'J' (Rs. )	(20,000)	7,000	13,000	12,000	-	-	-

**Required:**

- Estimate the net present value (NPV) of the Project 'P' and 'J' using 15% as the hurdle rate.
- Estimate the internal rate of return (IRR) of the Project 'P' and 'J'.
- Why there is a conflict in the project choice by using NPV and IRR criterion?
- Which criteria you will use in such a situation? Estimate the value at that criterion. Make a project choice.

The present value interest factor values at different rates of discount are as under:

Rate of discount	t <sub>0</sub>	t <sub>1</sub>	t <sub>2</sub>	t <sub>3</sub>	t <sub>4</sub>	t <sub>5</sub>	t <sub>6</sub>
0.15	1.00	0.8696	0.7561	0.6575	0.5718	0.4972	0.4323
0.18	1.00	0.8475	0.7182	0.6086	0.5158	0.4371	0.3704
0.20	1.00	0.8333	0.6944	0.5787	0.4823	0.4019	0.3349
0.24	1.00	0.8065	0.6504	0.5245	0.4230	0.3411	0.2751
0.26	1.00	0.7937	0.6299	0.4999	0.3968	0.3149	0.2499

**QUESTION NO.2**

**(10 MARKS)**

The Textile Manufacturing Company Ltd., is considering one of two mutually exclusive proposals, Projects M and N, which require cash outlays of Rs.8,50,000 and Rs.8,25,000 respectively. The certainty-equivalent (C.E) approach is used in incorporating risk in capital budgeting decisions. The current yield on government bonds is 6% and this is used as the risk free rate. The expected net cash flows and their certainty equivalents are as follows:

	Project M			Project N	
Year-end	Cash Flow (Rs.)	C.E.	Cash Flow (Rs.)	C.E.	
1	4,50,000	0.8	4,50,000	0.9	
2	5,00,000	0.7	4,50,000	0.8	
3	5,00,000	0.5	5,00,000	0.7	

Present value factors of Rs. 1 discounted at 6% at the end of year 1, 2 and 3 are 0.943, 0.890 and 0.840 respectively.

**Required:**

1. Analyse which project should be accepted?
2. If risk adjusted discount rate method is used , identify which project would be appraised with a higher rate and why?

**QUESTION NO.3**

**(12 MARKS)**

The R&G Ltd. has following capital structure at 31<sup>st</sup>December 2015, which is considered to be optimum:

	( Rs.)
13% Debenture	3,60,000
11% Preference share capital	1,20,000
Equity share capital (2,00,000 shares)	19,20,000

The company's share has a current market price of Rs. 27.75 per share. The expected dividend per share in next year is 50 percent of the 2015 EPS. The EPS of last 10 years is as follows. The past trends are expected to continue:

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
EPS ( Rs.)	1.00	1.120	1.254	1.405	1.574	1.762	1.974	2.211	2.476	2.773

The company can issue 14 percent new debenture. The company's debenture is currently selling at Rs. 98. The new preference issue can be sold at a net price of Rs. 9.80, paying a dividend of Rs. 1.20 per share. The company's marginal tax rate is 50%.

- (i) Calculate the after tax cost (a) of new debts and new preference share capital, (b) of ordinary equity, assuming new equity comes from retained earnings.
- (ii) Calculate the marginal cost of capital.
- (iii) How much can be spent for capital investment before new ordinary share must be sold?(Assuming that retained earnings available for next year's investment is 50% of 2015 earnings.)
- (iv) What will be marginal cost of capital (cost of fund raised in excess of the amount calculated in part (iii) if the company can sell new ordinary shares to net Rs. 20 per share ?The cost of debt and of preference capital is constant.

**QUESTION NO.4**

**(10 MARKS)**

Nine Gems Ltd has just installed Machine R at a cost of Rs. 2 Lakhs. The machine has a 5-year life with no Residual Value. The annual volume of production is estimated at 1,50,000 units, which can be sold at 6 per unit. Annual Operating costs are estimated at Rs. 2 Lakhs (excluding depreciation) at this output level. Fixed Costs are estimated at Rs. 3 per unit for the same level of production.

The Company has just come across another model Machine S, capable of giving the same output at an annual operating cost of Rs. 1.80 Lakhs (excluding depreciation). There will be no change in Fixed Costs. Machine S costs Rs. 2.50 Lakhs, its Residual Value will be Nil after a useful life of 5 years.

Nine Gems Ltd has an offer for sale of Machine R for Rs. 1,00,000. The cost of dismantling and removal will be 30,000. As the Company has not yet commenced operations, it wants to dispose off Machine R and install Machine S.

The Company will be a zero-tax Company for 7 years in view of Incentives and Allowances available. Cost of Capital is 14%.

Advise whether the Company should opt for replacement. Will your answer be different if the Company has not installed Machine R and is in the process of selecting either R or S ?

**QUESTION NO.5**

**(8 MARKS)**

Navya Limited wishes to raise additional capital of Rs.10 lakhs for meeting its modernization plans. It has Rs. 3,00,000 in the form of retained earnings available for investments purposes. The following are the further details:

Debt/equity mix	40%/60%
Cost of debt (before tax)	
Upto Rs. 1,80,000	10%
Beyond Rs. 1,80,000	16%
Earnings per share	Rs. 4
Dividend pay out	Rs. 2
Expected growth rate in dividend	10%
Current market price per share Rs.	44
Tax rate	50%

**You are required:**

- (a) To ascertain the pattern for raising the additional finance.
- (b) To calculate the post-tax average cost of additional debt.
- (c) To calculate the cost of retained earnings and cost of equity, and
- (d) Find out the overall weighted average cost of capital (after tax).