



CEX7110 - Construction Project Appraisal

FINAL EXAMINATION - 2009

Time Allowed: Three Hours

Date: 22-03-2010 (Monday)

Time: 0930 - 1230 hrs.

Answer any Four (04) questions.

Q1.

- (a) Explain what is meant by time value of money. Support your answer with an example. (Marks 05)
- (b) "Lenders are the losers during a period of high inflation". Explain this statement. (Marks 05)
- (c) Explain the usefulness of 'capital recovery factor' in decision making with regard to investments in machinery. (Marks 05)
- (d) Briefly explain what is understood by the following two terms; compounding and discounting. Use examples to illustrate your answer. (Marks 05)
- (e) Define capital budgeting and explain why 'investment decisions' require special attention. (Marks 05)

Q2.

- (a) Mr. X is expecting to borrow a sum of Rs. 4 million as a housing loan. The interest rate is 18% per annum. The loan is to be paid, together with the interest, in equal monthly installments. The loan needs to be settled during a period of 10 years.
- (i) Calculate the monthly payment
- (ii) Calculate the interest payment in the first month
- (iii) Calculate the value of loan outstanding at the end of the first month.

(Marks 12)



- (b) You are thinking of contributing to a pension scheme where you have to contribute Rs. 20,000 per annum commencing now (payments will be at the beginning of each year) for 10 years. The pension scheme guarantees a return of 15%. Calculate the value of your contributions at the end of 10 years.

(Marks 08)

- (c) Your company is planning to create a fund to maintain machinery. The maintenance cost is Rs. 200,000 per annum for three years and Rs. 175,000 per annum for the next two years. The fund can earn an interest of 15%. Calculate the value of the fund you should set aside today.

(Marks 05)

Q3.

- (a) A company is considering the purchase of the following machines (All values are in Rupees)

	Machine X	Machine Y
Life	4 Years	5 Years
Capital Cost	10,000	10,000
Year 1 Earnings (After tax)	4,400	3,100
Year 2 Earnings (After tax)	3,300	2,400
Year 3 Earnings (After tax)	3,200	2,200
Year 4 Earnings (After tax)	4,000	2,100
Year 5 Earnings (After tax)	-	1,500

Cost of capital is 14%

Compute the payback period for each machine

(Marks 07)

- (b) Compute the average annual rate of return of each machine.

(Marks 06)

- (c) Discuss the disadvantages of Pay back period over the other methods

(Marks 06)

- (d) The inflation rate is 14% and a project is expected to generate a return of 18% per annum on nominal basis. Calculate the real return.

(Marks 06)

Q4.

- (a) A company with annual pre-tax profits of approximately Rs. 20 million proposes to purchase an item of plant for Rs. 500,000. There is no expected resale value. Depreciation allowance to be set against tax is 100% in the first year. This purchase is entitled for an investment grant of 20%. Corporate tax is 50% and a time lag of one year exists before tax is paid and the grant is received. Compute the cash flows net of tax based on the projected revenues given in the table below, and determine whether the net of tax yield is more than 15%.



Year	Net revenue (Rs.)
1	150,000
2	180,000
3	200,000
4	200,000
5	100,000
6	100,000

(Marks 12)

- (b) Briefly explain the assumptions made in Discounted Cash Flow appraisal methods.

(Marks 06)

- (c) Compare the advantages of 'Discounted cash flow methods' over 'Non discounting cash flow methods' in capital budgeting.

(Marks 07)

Q5

- (a) Two mutually exclusive investments have cash flows as follows (values in Rupees):

	Year 0	Year 1	Year 2	Year 3
Project A	-24,000	+8,000	12,000	16,000
Project B	-24,000	+16,000	10,000	8,000

The cost of capital is 10%.

Appraise the two projects using;

- i) Net present value technique
- ii) Internal rate of return

(Marks 10)

- (b) Discuss the advantages of 'Net Present Value' over 'Internal Rate of Return' in capital budgeting.

(Marks 05)

- (c) The management of Sharp Pin Company is contemplating the purchase of a new machine (at a cost of \$100,000) capable of producing 192,000 units per year. The old machine that is capable of producing 130,000 units per annum is to be sold for \$20,000 in the event of purchasing a new machine. The contribution margin per unit from operating the new machine is \$0.125, while it is \$0.10 per unit from operating the old machine.

The useful life of the old machine was 10 years when it was purchased 2 years ago. The useful life of the new machine is eight years. The new machine has a salvage value of \$20,000, while the old machine's salvage value is zero. The old machine will require an overhaul at the end of two years from today at a cost of \$10,000. The new machine will require an overhaul at the end of the fourth year at a cost of \$8,000. The firm's cut off rate for investment decisions is 10 percent. Income taxes are to be ignored. Using the comparative income approach and net present value analysis, determine whether the old machine should be replaced.

(Marks 10)



Q6.

ABC Company operates a snack food center at the Airport. On January 1, 2000, ABC purchased a special cookie-cutting machine, which has been used for three years. ABC is considering purchasing a newer, more efficient machine. If purchased, the new machine would be acquired today, January 1, 2003. ABC expects to sell 300,000 cookies in each of the next four years. The selling price of each cookie is expected to average Rs.50.

ABC has two options (1) continue to operate the old machine or 2) sell the old machine and purchase the new machine. The seller of the new machine offered no trade in. The following information has been assembled to help management decide which option is more desirable (all values are given in Rs.):

	Old Machine	New Machine
Initial purchase costs of machine	8,000,000	12,000,000
Terminal disposal value at the end of useful life assumed for depreciation purposes	1,000,000	2,000,000
Useful life from date of acquisition	7 years	4 years
Expected annual cash operating costs:		
Variable cost per cookie	20	14
Total fixed costs	1,500,000	1,400,000
Depreciation method used for tax purposes	Straight line	Straight line
Estimated disposal prices of machines:		
January 1, 2003	4,000,000	12,000,000
December 31, 2006	700,000	2,000,000

ABC is subject to a 40% income tax rate. Assume that any gain or loss on the sale of machines is treated as an ordinary tax item and will affect the taxes paid by ABC in the year in which it occurs. ABC has an after tax required rate of return of 16%.

- (a) Using Net present value method determine whether ABC should retain the old machine or acquire the new machine.

(Marks 13)

- (b) How much more or less would the recurring after tax cash operating savings have to be for ABC to exactly earn the 16% after tax required rate of return? Assume all other data about the investment do not change.

(Marks 07)

- (c) Assume that the financial differences between the net present values of the two options are so slight that ABC is indifferent between the two proposals. Identify and discuss the non-financial and qualitative factors that ABC should consider.

(Marks 05)

