

Systematic Studies For Professionals
(Where your quest for quality education ends)

Time 2Hrs.

Capital Budgeting

Max.Marks:75

Q.1 A chemical company is considering investing in a project that costs Rs.4,40,000. The estimated salvage value is Rs.20,000. Tax rate is 35%. The company uses straight -line depreciation and the proposed project has Cash flow before tax (CFBT) as follows:

| Year | Amount |
|------|-------------|
| 1 | Rs.1,00,000 |
| 2 | Rs.1,30,000 |
| 3 | Rs.1,50,000 |
| 4 | Rs.1,80,000 |
| 5 | Rs.2,50,000 |

Determine the following:

- Payback period
- Accounting rate of return
- Net present value at 15%
- Profitability index at 15%
- Internal rate of return

[2+2+4+2+4]

Q.2 Following are the data on a capital project being evaluated by management of X Ltd.

| | Project M |
|--------------------------|-----------|
| Annual cost saving | Rs.60,000 |
| Useful life | 4 years |
| I.R.R | 14% |
| Profitability index (PI) | 1.064 |
| NPV | ? |
| Cost of capital | ? |
| Cost of project | ? |
| Pay back | ? |
| Salvage value | 0 |

Find the missing values considering the following table of discount factor only.

| Discount factor | 15% | 14% | 13% | 12% |
|-----------------|--------------|--------------|--------------|--------------|
| 1 year | 0.869 | 0.877 | 0.855 | 0.893 |
| 2 year | 0.756 | 0.769 | 0.783 | 0.797 |
| 3 year | 0.658 | 0.675 | 0.693 | 0.712 |
| 4 year | <u>0.572</u> | <u>0.592</u> | <u>0.613</u> | <u>0.636</u> |
| | 2.855 | 2.913 | 2.974 | 3.038 |

[8]

Q.3 Techtronics Ltd. an existing company is considering a new project for manufacture of pocket video games involving a capital expenditure of Rs.500 lakhs and working capital of Rs.150 lakhs. The capacity of the plant is for an annual production of 15 lakhs units and capacity utilization during the 6 years life of the project is expected to be as indicated below:

| <u>Year</u> | <u>Capacity Utilization %</u> |
|-------------|-------------------------------|
| 1 | 33 1/3% |
| 2 | 66 2/3% |
| 3 | 80% |
| 4 – 6 | 100% |

The average price per unit of the product is expected to be Rs.200 netting a contribution of 35%. Material cost is expected to be 40% of marginal cost. Annual fixed costs, excluding depreciation are estimated to be Rs.480 lakhs per annum from the third year onwards: for the first and second year it would be Rs.240 lakhs and Rs.360 lakhs respectively. The average rate of depreciation for tax purpose is 33 1/3% on the capital assets. The rate of income tax may be taken at 40%. At the end of third year, an additional investment of Rs.100 lakhs would be required for working capital. The company without taking in to account the effects of financial leverage, has targeted for a rate of return of 15%. The present factors at 15% discount rate per year wise, are expected below: 0.869, 0.756, 0.658, 0.571, 0.497 and 0.432.

Terminal value for the fixed assets may be taken at 10% and for the current assets at 100%. Calculations may be rounded off to lakhs of rupees.

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You are required to indicate whether the proposal is viable giving your working notes and analysis if 75% of the sales is realized in the same year and rest in the subsequent year & There is tax delay by one year.

Q.4 The Olson Company has decided to acquire a new truck. One alternative is to lease the truck on a 4 year contract for a lease payment of \$12,500 per year, with payments to be made at the beginning of each year. The lease would include maintenance. Alternatively, Olson could purchase the truck outright for \$50,000, financing with a bank loan for the net purchase price and amortizing the loan over a 4 year period in 4:3:2:1 at an interest rate of 12% per year under the borrow-to-purchase arrangement. Olson would have to maintain the truck at a cost of \$1,000 per year payable at year – end. Assume depreciation on trucks 1st year – 30%, 2nd year – 45%, 3rd year – 15% and 4th year – 10% on total cost. And it has a salvage value of \$10,000 which is the expected market value after 4 years, at which time Olson plans to replace the truck irrespective of whether it leases or buys. Olson has a tax rate of 34%. **Advise** the management.

[12]

Q.5 The Western India Company is considering the replacement of one of its machines with a newer model which supposedly with reduce operating costs considerably. The Co. has prepared the following analysis of costs:

| | Old Machine | New Machine |
|--------------------|---------------|---------------|
| Depreciation | Rs.10,000 | Rs.18,000 |
| Labour | 12,000 | 6,000 |
| Other Costs | <u>10,000</u> | <u>4,000</u> |
| Total Annual Costs | <u>32,000</u> | <u>28,000</u> |

The old machine originally cost Rs. 80,000 and has been operated for three years out of an estimated eight – year life. The new machine, which has an estimate life of five years, can be acquired for Rs.90,000 less a trade – in allowance of Rs.20,000 for the old machine. The other costs listed above consist of repairs, power to operate the machine, lubrication and similar costs. Assuming straight – line depreciation also for new machine and a tax rate of 40%, **determine** the incremental cash flows (both outflows and inflows) of the replacement decision & evaluate @ 12% ?

[12]

Q.6 A company has investible funds of Rs.25 lakhs in first year and there shall be no fund constraints in second year onwards. It is considering the following projects.

| Project | PV outflows | Initial outflows | NPV (Rs. in lakhs) | Remarks |
|---------|-------------|------------------|--------------------|-------------|
| A | 3 | 3 | 12 | Indivisible |
| B | 6 | 5 | 18 | ” |
| C | 12 | 8 | 20 | “ |
| D | 9 | 6 | 8 | “ |
| E | 4 | 4 | 5 | “ |
| F | 10 | 8 | 5 | “ |
| G | 10 | 8 | (-)2 | “ |

Project B & D are mutually exclusive and Project A is complementary to G. Any un invested amount in first year would results in a negative N.P.V of one rupee for every ten rupees of un invested amount. **Select** the most desirable combination of Projects.

[10]

Q.7 M. Ltd has specialized in the manufacture of a particular type of transistors. Recently it has developed a new model and is confident of selling all the 10,000 units (new products) that would be manufactured in a year. The required capital equipment would cost Rs 25 lakhs and that would have an economic life of 4 year with no significant salvage value at the end of such period.

During the first four years, the promotional expenses be as planned below:

| Expenses | Year 1 | Year 2 | Year 3 | Year 4 |
|---------------|-------------|-----------|-----------|-----------|
| Advertisement | Rs 1,00,000 | Rs 80,000 | Rs 50,000 | Rs 30,000 |
| Others | 50,000 | 60,000 | 80,000 | 90,000 |

Variable costs of producing and selling a unit would be Rs 250. Additional fixed operating costs to be incurred because of this new product are budgeted at Rs 75,000 per year.

The management expects a discounted return on 12% (after tax) on investments in the new product.

You are required to work out an initial selling price unit of the new products that may be fixed with a view to obtaining the desired return on investment. Assume a tax rate of 40% and use of straight –line method of depreciation for tax purpose. Note: The present value of annuity of Rs 1 received or paid in a steady stream throughout the period of 4 years in the future at 12% is 3.6047.

[9]