

Chapter 6

Time Value of Money

Example 1:

What is the present value of Rs. 10000 receivables after 8 years if the interest rate is (a.) 10 percent, (b.) 12 percent, (c.) 15 percent.

Example 2:

What is the present value of a 5-year annuity of Rs. 2000 at 10 percent?

Example 3:

On retirement, Mr. Shyam is given a choice between two alternatives:

- a. An annual pension of Rs. 10000 as long as he lives, and
- b. A lumpsum amount of Rs. 50000.

If Mr. Shyam expects to live for 15 years and the interest rate is 15 percent, Which option is more attractive?

Example 4: What is the present value of the following cash flow streams?

Year	1	2	3	4	5	6	7	8	9	10
A	50	100	150	200	250	300	350	400	450	500
B	500	450	400	350	300	250	200	150	100	50
C	400	400	400	400	400	400	400	400	400	400

The discount rate is 12 percent.

Example 5:

Mr. Prince intends to have return of Rs. 10000 per annum for perpetuity. Discount rate 20%. Calculate the present value.

Example 6:

Suppose if you deposit Rs. 10000 today in a financial institute at 6% compound interest for a period of 5 years, what is the compound value?

Example 7:

Mr. Ravi wants to save for the college education of his son, Deepak. Mr. Ravi could save Rs. 40,000 every year-end for five years so that he could pay the fees in lump sum after five years. (College fees is expected to be Rs. 250,000) (discount rate 8%). Comment.

Example 8:

How much Vijay should save if he wishes to purchase a flat expected to cost of 80 lacks after 8 years if the investment option available to him offers a rate of interest at 9%.

Example 9:

Calculate the future value of an investment of Rs. 20,000 offering 10% Interest rate after 20 years.

- a. If Compounding annually.
- b. If compounding semi-annually.
- c. If compounding monthly.

Example 10:

A bank is offering an interest rate of 6% on savings deposit. If the compounding is done on a quarterly basis, what is the effective interest rate (Annual)?

Example 11:

Mahesh deposits Rs. 200000 in a bank account which pays 10 percent interest. How much can he withdraw annually for a period of 15 years?

Example 12:

Suppose you have borrowed a 3 year loan of Rs. 10000 at 9% from your employer to buy a motorcycle. If your employer requires three equal end-of-year repayments.

Prepare loan amortization schedule.

Practice sums:

Example 1:

Mr. Jack Sparrow is saving money to go to an island near the Bermuda triangle after 10 years. He believes that his plan to go to this island for a vacation may cost him Rs. 2,000,000. How much should he save annually (equal amount) to have a sum of Rs. 2 million after 10 years if interest rate is 8%. (Savings are made at the end of the period)

Example 2:

Calculate the present value of Rs. 500,000 receivable after 10 years. The discount rate is 5%. What would be your answer if the discount rates are 6% and 8%?

Example 3:

Calculate the sum of investment after 10 years if:

- a. Rs. 10,000 invested at 10% interest rate compounding annually.
- b. Rs. 10,000 invested at 10% interest rate compounding quarterly.

Example 4:

A bank is offering an interest rate of 12% on savings deposits. If the compounding is done on a monthly basis, what is the effective interest rate?

Example 5:

What is the present value of the income stream which provides Rs. 2000 a year for the first five years and Rs. 3000 a year forever thereafter, if the discount rate is 10%?