DAFFODIL INSTITUTE OF IT (DIIT)

BBA (Honours) in Tourism and Hospitality Management (THM)
Third Year Sixth Semester
Fundamentals of Finance
Chapter- 3
Time Value of Money and its Application

Formula for Time Value of Money

1. Present Value single sum (PV)

$$PV= \frac{FV}{(1+R)^n}$$

2. Future Value single sum (FV/TV)

$$FV= PV (1 + R)^n$$

3. Present Value Ordinary Annuity/Ending Installment/Payment at the end of the year (PVa)

$$PVa= A\left[\frac{1 - \frac{1}{(1+R)^n}}{R}\right] \qquad \text{Or. } PVa = A\left[\frac{1}{R} - \frac{1}{R(1+R)^n}\right]$$

4. Future Value Ordinary Annuity/Ending Installment/Payment at the end of the year (FVa)

$$FVa= A\left[\frac{(1+R)^n-1}{R}\right] \qquad \text{Or. } FVa = \frac{A\{(1+R)^n-1\}}{R}$$

5. Present Value Annuity Due/Beginning Installment/Payment at the beginning of the year(PVa)

$$PVa= A\left[\frac{1 - \frac{1}{(1+R)^n}}{R}\right] \times (1+R) \qquad \text{Or. } PVa = A\left[\frac{1}{R} - \frac{1}{R(1+R)^n}\right] \times (1+R)$$

6. Future Value Annuity Due/Beginning Installment/Payment at the beginning of the year (FVa)

$$FVa= A\left[\frac{(1+R)^n-1}{R}\right] \times (1+R) \qquad \text{Or. } FVa = \frac{A(1+R)\{(1+R)^n-1\}}{R}$$

7. In case of Debt/Bond/Borrow/ Bank Loan/Loan payment/ offer (PV)

$$PVa= A\left[\frac{1 - \frac{1}{(1+R)^n}}{R}\right] \qquad \text{Or. } PVa = A\left[\frac{1}{R} - \frac{1}{R(1+R)^n}\right]$$

8. If do not mentioned Beginning or Ending Installment/Annuity

   (i) $$PVa= A\left[\frac{1 - \frac{1}{(1+R)^n}}{R}\right] \qquad \text{Or. } PVa = A\left[\frac{1}{R} - \frac{1}{R(1+R)^n}\right]$$

   (ii) $$FVa= A\left[\frac{(1+R)^n-1}{R}\right] \qquad \text{Or. } FVa = \frac{A\{(1+R)^n-1\}}{R}$$

NB.: Where,

    PV= Present Value
    FV= Future Value

TV= Terminal Value

PVa= Present value annuity

FVa= Future value annuity

R= Interest Rate/ Discount rate/ Hurdle rate/ Cost of capital/ Required rate

n= Number of years/ Times/ Periods

A= instalment