Future Value

1. General form of equation to calculate future value of a lump sum amount after *n* periods may be written as follows

$$F_n = P(1+i)^n$$

$$F_n = P \times CVF_{n,i}$$

i= interest rate, n= number of year/periods, P= Principal, F_n = Future Value

pmt= annuity value, pv= present value, type= 1 for beginning of the period and 0 for end for end of period (When period 1 indicate beginning of period and period 0 indicate end of period)

Future Value of Annuity

$$F_n = A$$

$$F_n = A \times CVFA_{n,i}$$

Sinking Fund

Sinking fund is a fund, which is created out of fixed payment each period to accumulate to a future sum after a specified period.

Sinking fund factor or Present value (Principal Amount)

$$A =$$

Present Value

Formula to calculate Present value/Discounting

$$P = \quad = F_n$$

$$PV = F_n \times PVF_{n,i}$$

Present Value of Annuity

$P = A$

$P = A \times PVAF_{n,i}$

Capital Recovery Factor

$A =$ **OR** $A = P$

$A = P \times CRF_{n,i}$

Present Value of an Uneven Periodic Sum

In most instances the firm receives a stream of uneven cash flows. Thus the present value factors for an annuity cannot be used. The procedure is to calculate the present value of each cash flow and aggregate all present values.

Present Value of Perpetuity

Present Value of Perpetuity =

Present Value of Growing Annuities

P =

P =

Value of an Annuity Due(At the Beginning of Year)

It is a series of fixed receipts of payments starting at the beginning of each period for a specified number of periods.

Future value of an Annuity Due

$F_n = A \times CVFA_{n,i} \times (1+i)$

Present value of an Annuity Due

$$P = A \times PVAF_{n,i} \times (1+i)$$

Multi-Period Compounding

If compounding is done more than once a year, the actual annualised rate of interest would be higher than the nominal interest rate and is called the effective interest rate.

EIR = - 1

Continuous Compounding

$F_n = P \times$ OR $F_n = P \times$

Present value under continuous compounding

P = OR $P = F_n \times$

Net Present Value

NPV = C_0