



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

1. What do you mean by present value of annuity and terminal value of annuity?

Present value of annuity: An annuity is a series of equal payments are to be received or paid periodically. They can occur at either the beginning or the end of each period. Examples of series of periodic receipts or payments on loan, bonds, lease contract and pension.

There are two types of present value of annuity:

1. Present value of ordinary annuity and
2. Present value of annuity due

Formula for present value of ordinary annuity (PVa) = $A \left[\frac{1}{R} - \frac{1}{R(1+R)^n} \right]$ (Ending)

Formula for present value of annuity due (PVa) = $A \left[\frac{1}{R} - \frac{1}{R(1+R)^n} \right] \times (1+R)$ (Beginning)

Terminal value of annuity: An annuity is a series of equal payments made at fixed intervals for a specified number of periods. They can occur at either the beginning or the end of each period. There is two types of future value of annuity:

1. Future value of ordinary annuity and
2. Future value of annuity due

Formula for future value of ordinary annuity (Tva) = $\frac{A\{(1+R)^n-1\}}{R}$ (Ending)

Formula for future value of annuity due (TVa) = $\frac{A(1+R)\{(1+R)^n-1\}}{R}$ (Beginning)

2. Give the central idea of annuity.

Or. Explain the types of annuity.

Annuity: Annuity is a series of equal payments or receipts occurring over a specified number of time periods. They can occur at either the beginning or the end of each period.

According to Van Horne, “Annuity is a series of equal payments or receipts occurring over a specified number of periods.”

Annuity can be divided into following types:

1. Ordinary annuity
2. Annuity due
3. Deferred annuity
4. Perpetual annuity

Ordinary annuity: When cash flows are occurred at the end of each period is called ordinary annuity.

According to L.J. Gitman, “An ordinary annuity is the cash flow occurs at the end of each period.”

Annuity due: When cash flows are occurred at the beginning of each period is called annuity due.

According to L.J. Gitman, “An annuity due is the cash flow occurs at the beginning of each period.”

Deferred annuity: Deferred annuity is an annuity that starts after a definite time period and continue for specific period of time.

Perpetual annuity: Perpetuity is an annuity with an infinite life.

According to Van Horne, “A perpetuity is an ordinary annuity where payment or receipts continue forever.”

3. Differences between Simple Interest & Compound Interest.

<i>Topics</i>	<i>Simple Interest</i>	<i>Compound Interest</i>
Definition	Simple interest is the interest that is paid (earned) on only the original or principal amount.	Compound interest is the interest that is earned on interest as well as the initial principal amount.
Interest amount	Interest charges only on principal amount so interest amount is less.	Interest charges on principal amount interest as well as interest so interest amount is more.
Interest charge	Only on principal amount.	On principal and interest amount.
Rate	Interest rate is fixed.	Effective interest rate increase.
Principal	Principal is always same.	Principal amount is increased.
Future value	Future value is smaller.	Future value is higher
Expectation	Lenders do not expect but borrowers expect it.	Lenders expect but borrowers do not expect it.
Investment	Do not invest in this rate.	Invest more in this rate.
Formula	$SI = P \times n \times r$	$CI = P(1+r)^N$

4. Differences between Discounting & Compounding.

<i>Topics</i>	<i>Discounting</i>	<i>Compounding</i>
Definition	Discounting is the process of finding the present value of a future cash flow or series of cash flows.	Compounding is the process finding the future value of a cash flow or a series of cash flows.
Use	For calculation of present value.	For calculation of future value.

Amount of Money	By this method amount of money is decreased	Amount of money is increased.
Value of Money	In lower rate present value is increased in in higher rate present value is decreased.	In lower rate future value decreased and in higher rate present value is increased.
Time Line	Time line goes to left side from right hand side.	Time line goes to right side from left hand side.
Formula	$PV = FV / (1+R)^N$	$FV = PV(1+R)^N$
Result	Present or discounted value	Future or compounded value.

5. Differences between Present Value and Future Value

<i>Topics</i>	<i>Present Value</i>	<i>Future Value</i>
Definition	Present value is the current value of a future amount of money or series of payment.	Future value is the value of some future time of a present amount money.
Concept	Present value concept is discounting.	Future value concept compounding.
Uses	To find present value of future amount.	To find future value of present amount.
Preference	People like present value most.	Future value is related with risk they would not prefer it than present value.
Money value	Money value increase	Money value decrease.
Interest Rate	In lower rate present value is increased and in higher rate present value is increased.	In lower rate future value decreased in higher future value is increased.
Formula	$PV = FV / (1+R)^N$	$FV = PV(1+R)^N$
Calculation	Future values are divided by interest factor.	Present value is multiply interest factor.

6. Differences between Ordinary Annuity & Annuity Due

<i>Topics</i>	<i>Ordinary Annuity</i>	<i>Annuity Due</i>
Definition	Ordinary annuity is the payment or receipt occurs at the end of each period.	Annuity due is the payment or receipt occurs at the beginning of each period.
Cash flows start	Cash flows start at the end of each period.	Cash flow start at the beginning of each period.
Future Value	Future Value	
Indicator	End of the year, after one year, one year from now, from next year etc.	Beginning of the year, now, immediately, start of the year etc.

Period	One period is less than annuity due.	One extra period is more than ordinary annuity.
Interest factor	One interest factor is less than annuity due.	One interest factor is more than ordinary annuity.
Total value	Total value of money is less than that of annuity due.	Total value of money is more than that of ordinary annuity.