📝 Unit-5: Financial Concepts

📌 Time Value of Money

- Meaning: Money today is more valuable than the same money in the future.
- Reason: Because today's money can **earn interest**, be invested, and grow.
- Example: ₹1000 today in a bank grows with interest, but ₹1000 received after 1 year has already lost the chance to earn during that year.

📌 Concept of Time Value of Money

- Money **depends on time** when it is received.
- Money received today > same money received after some years.
- Future money is less valuable compared to present money.

Example:

- **Today's money** = ₹1000 in hand.
- **Future money** = ₹1000 after 2 years (less useful, because you could have invested it today).

📌 Why Money Today is Worth More?

Because:

1. **Medium of Exchange**
    - Money can buy goods & services anywhere.
    - Example: You can pay ₹100 for fruits or recharge. No need to exchange goods like barter system.
2. **Store of Value**
    - Money can be saved and used later.
    - Example: Earn ₹10,000 today → save it → use after 6 months. Money doesn't spoil like fruits.

3. **□ Unit of Account**
    - Money helps measure value of things in one common unit.
    - Example: Pen ₹10, Shirt ₹500, Jeans ₹800 → makes budgeting easy.
4. **□ Liquidity**
    - Money is most liquid asset.
    - You can instantly buy anything with cash. (Land or gold needs to be converted first).
5. **□ Standard of Deferred Payment**
    - Used to pay debts or future payments. Ensures clarity in credit transactions.
6. **□ Easy to Carry & Store**
    - Notes are light & compact.
    - Example: ₹5000 fits in wallet, but you can't carry rice bag of equal value.
7. **□ Legal Tender**
    - Govt-recognized money (notes/coins) must be accepted.
    - Example: Shopkeeper must accept a ₹20 note.

📌 Compounding and Discounting

- **Compounding (Future Value):** Grow present money into future by earning interest on **principal + past interest**.
  Example: Invest ₹1000 at 10% for 2 years → grows more each year.
- **Discounting (Present Value):** Opposite of compounding. Brings **future money into today's value**.
  Example: You will get ₹1210 after 2 years @ 10%. PV = 1210 / (1.10)^2 = 1000.

📌 Methods / Techniques of Time Value of Money

1. **Future Value of Single Amount**

- If you deposit ₹10,000 at 10% for 1 year → grows to 11,000.
- Formula: FV = PV (1+r)^n
- Example: Virat deposits ₹1000 @12% for 8 years → FV = ₹2476.

2. **Future Value of Uneven Cash Flow**
    - Different money received each year.
    - Example: Year1: 1000, Year2: 2000, Year3: 1500 @5% → FV = 4702.5.
3. **Present Value of Single Amount**
    - Future money converted to today's value.
    - Example: Ms. Dhanashree gets ₹2,50,000 after 6 years. PV = ? at 12%.
4. **Future Value of Annuity**
    - Annuity = equal fixed payment each year.
    - Example: Mr. Viraj deposits ₹15,000 yearly for 6 years @8% → total FV = calculated.
5. **Present Value of Annuity**
    - Example: Ms. Sushmita gets ₹25,000 every year for 9 years @9%. PV = ?
6. **Present Value of Perpetuity**
    - Infinite stream of money.
    - Example: Insurance promises ₹7000 yearly forever. Rate = 8%.
    - PV = 7000 / 0.08 = 87,500.
    - If investment cost = 93,000 → not good (cost > PV).
7. **Intra-Year Compounding/Discounting**
    - Compounding/discounting for periods less than 1 year.
8. **Sinking Fund**
    - Saving regularly for future expense or repayment.

9. **Loan Amortization & Capital Recovery**
    - Repaying loans in equal installments (EMI).
    - Example: Mr. Ram takes loan ₹25,00,000 @7% for 5 years. EMI = 6,09,756.
10. **EMI Calculation**

- Example: Mr. Jay borrowed ₹1,00,000 @10% for 3 years. EMI calculated.

📌 Doubling Period Rules

Quick methods to estimate how many years money will take to double:

- **Rule of 72:** Time = 72 / Rate.
  Example: @8% → 72/8 = 9 years.
- **Rule of 70:** For low rates/inflation. Time = 70 / Rate.
  Example: @5% → 14 years.
- **Rule of 69:** Accurate for continuous compounding.
  Formula = 0.35 + 69/Rate.
  Example: @6% → 0.35 + 69/6 = 11.85 years.

📌 Investment

- Meaning: Putting money in assets with aim of income, profit, or growth.
- Example: Mutual funds, shares, real estate, etc.

📌 Investment Avenues (Options)

- **SIP (Systematic Investment Plan):** Invest small fixed amount in mutual funds at regular intervals.
    - Money auto-debited, invested in MF.
    - Units allotted as per NAV.
    - Long-term benefits with higher returns.

- **Importance of SIP at Early Age:** Start early → more wealth due to compounding effect.