**CHAPTER-7**

**SIMPLE INTEREST AND COMPOUND INTEREST**

**What is Interest?**  
When borrowed some money from other for the personal or commercial purpose we pay some additional money to him after a certain period of time is called**Interest**.

**What is Simple Interest?**

**Simple interest** is calculated only on the principal amount, or on that portion of the principal amount that remains.

**What is Compound Interest?**

**Compound interest** is interest added to the principal of a deposit or loan so that the added interest also earns interest from then on. This addition of interest to the principal is called ***compounding*.**

**What is Principle?**  
The money borrowed for a certain time period called**Principle or Sum.**

**What is Amount?**  
TheAddition of Simple Interest andPrinciple is called the**Amount.**  
**A = S.I + P (Principle).**  
**S.I = A (Amount) – P (Principle).**

**What is per annum means?**  
Per annul means for a year.

**P = Principle**, **R = Rate of per annum**, **T = Number of years**

**Formulas Need to Remember**  
**S.I** **= **

**P = s**

**R** = 

**Example:**  
Find the simple interest on Rs 400 for 4 years at 4 per cent ?

**Answer:**  
SI = 400 x 4 x 4 / 100  
Simple interest in 4 years is Rs 64 .

**Example:** Find the Simple Interest on Rs. 40000 at 25 / 4 % per annul for the period from 4th January, 2013 to 18th march, 2013.

**Answer:**  
Step 1: First we calculate the period of time taken that is = January = (31 – 4) = 27 days, February = 28 days, March = 18 day. Add all together (27 + 28 + 18 ) = 73 / 365 year = 1 / 5 years.  
Step 2: we know Principle P = 40000, and R = 25 / 4 % p.a.  
Step 3: S.I = Rs. ( 40000 X 25 X 1 X 1 / 4 X 100 X 5 ) = Rs. 500  
So the S.I is 500.

**Example:**  
What is the rate of p.c.p.a ? If the simple interest accrued on amount of Rs.25500 at the end of 3 years is 9180.  
**Answer:**  
we know the formula is S.I = PRT / 100  
So, S.I = 9180 , P = 25500 , T = 3 years , R = ?  
9180 = 25500 x R x 3 / 100  
R = 9180 / 765 = 12 %  
so, rate of p.c.p.a = 12 %

**Example:**  
Sarikatakes a sum from Dinesh at simple interest at 25x / 2 per annul and amounts to Rs.3202.50after 6 years. Find the Sum or Principle taken by Sarika from Dinesh.

**Answer:**  
First We consider sum is x and Rate percent is 25x / 2 and Time is 6 years, So  
**Step 1:**Then  **S.I. = Rs. P X R X T / 100 = 3x / 4.**  
**Step 2:**Amount = Sum + Simple Interest = x + 3x / 4 = **7x / 4.**  
**Step 3:**7x / 4 = 3202.50 and x = 3202.50 X 4 / 7 = **1830.**  
Sarika taken sum from Dinesh is **1830.**

**Some important formulae of Compound Interest**

**Type I: When interest compounded yearly : A = P ( 1 + r / 100 )n**

**Type II: When interest compounded half – yearly :**  
Amount = **P [ 1 + r / 2 / 100 ]4n** or = P = **[ 1 + r / 200 ] 2n**

**Type III: When interest compounded quarterly :**  
Amount =**P [ 1 + r / 4 / 100 ]**   or  =**P [ 1 + r / 400 ] 4n**

**s**

**Example:**  
Principle is 15000 at rate percent 4% p.c.p.a for 2 years, and compound annually  
Find the C.I.  
**Answer:**  
We apply the formula to obtain C.I that is **C.I = p [(1 + r / 100)n – 1]**  
**P = 15000.**  
**R = 4%.**  
**Time = 2 years.**  
= 15000 x [( 1 + 4 / 100)2 – 1].  
= 15000 x [26×26/25×25 – 1]. [ as we put down (26 / 25)2]  
= 15000 x 51 / 625 .  
**= 1224**

**Example:**  
The Simple Interest accrued on an amount of Rs.22,500 at the end of 3 years is Rs. 10800what would be the Compound Interest accrued on the same amount at the same rate at the end of two years ?  
  
**Answer:**  
Here is given**amount = 22,500**, **Time = Years 3** and**S.I = 10800** so we need to find Rate percent.  
**Step 1:** we know S.I = P x R x T / 100  
10,800 = 22,500 x R x 3 / 100  
R = 1080000 / 67500 = 16 % So R = 16 %.  
**Step 2:** Compound Interest accrued on the **same amount** at the **same rate**at the **end of two years**  
is we apply the formula  
C.I = 22500 x (116 / 100 x 116 / 100 – 1 )  
= 22500 x( 116 x 116/ 10000 – 1) = 22500 x( 13456 / 1000) – 1 = 22500 x (1.3456 – 1) = 22500 x 0.3456 =7776  
So the C.I end of two years is 7776.