



# SILVER OAK UNIVERSITY

---

## EDUCATION TO INNOVATION

Date : ..... Page No. ① .....

College name :- ASOIT

Name :- Nancy Kumari

Enrollment no :- 2202030400089

Div :- BTech (CE2)

Subject :- ABPS = II

Batch :- CE2 (Batch - II).



# SILVER OAK UNIVERSITY

## EDUCATION TO INNOVATION

Date: ..... Page No. (1)

Assignment - 2.

Q-1 RS. 1200 is lent out at 5% per annum simple interest for 3 years. Find the amount after 3 years.

(a) 1380

$$\text{Simple interest} = \frac{P \times R \times T}{100}$$

$$P = \text{Principal} = \text{RS. } 1200$$

$$R = \text{Rate} = 5\% \text{ per annum}$$

$$T = \text{Time} = 3 \text{ years}$$

$$\rightarrow \text{SI} = \frac{1200 \times 5 \times 3}{100} = \frac{18000}{100} = 180 \text{ Rs.}$$

Total Amount after 3 years :-

$$\begin{aligned} \text{Amount} &= \text{Principal} + \text{SI} \\ &= 1200 + 180 = 1380 \text{ Rs.} \end{aligned}$$

Q2. What is the difference between the simple interest on a principal of RS. 500 being calculated at 5% per annum for 3 years, and 4% per annum for 4 years?

(b) 5 Rs.

Simple Interest at 5% for 3 years :-

$$\text{SI}_1 = \frac{500 \times 5 \times 3}{100} = \frac{7500}{100} = 75 \text{ Rs.}$$

= Simple Interest at 4% for 4 years :-

$$\begin{aligned} \text{SI}_2 &= \frac{500 \times 4 \times 4}{100} = \frac{8000}{100} \\ &= 80 \text{ Rs.} \end{aligned}$$



# SILVER OAK UNIVERSITY

## EDUCATION TO INNOVATION

Date: \_\_\_\_\_ Page No.: \_\_\_\_\_

⇒ Difference in Simple Interest :-

$$\begin{aligned}\text{Difference} &= S.I_2 - S.I_1 \\ &= 80 - 75 \\ &= 5 \text{ Rs.}\end{aligned}$$

Q-3 Albert invested an amount of Rs. 8000. in a fixed deposit scheme for 2 years at compound interest rate 5% p.a. How much amount will Albert get on maturity of the fixed deposit?

$$\Rightarrow \text{Compound interest} = P \left( 1 + \frac{R}{100} \right)^T$$

A = Compound interest (on maturity)

P = Principal = Rs. 8000.

R = Rate = 5% per annum.

T = Time = 2 years.

$$A = 8000 \left( 1 + \frac{5}{100} \right)^2$$

$$\begin{aligned}A &= 8000 \times (1.05)^2 \\ &= 8000 \times 1.1025 \\ &= 8820 \text{ Rs.}\end{aligned}$$

Q-4. The difference b/w compound interest and simple interest on an amount of Rs. 150,000 for 2 years is Rs. 96. What is the rate of interest per annum?



# SILVER OAK UNIVERSITY

## EDUCATION TO INNOVATION

Date: ..... Page No.: 2

⇒ Difference betw compound interest and simple interest for 2 years, /

$$\text{Difference} = P \times R^2$$

$$P = \text{Principal} = \text{Rs. } 10000$$

$$R = \text{Rate of interest.}$$

Diff betw CI & SI is given 96 Rs.

$$96 = \frac{10000 \times R^2}{10000}$$

$$96 = 1 \times R^2$$

$$R^2 = 96 \times 1 = 96$$

$$R = \sqrt{96} = 8, \text{ or } 8\% \text{ per annum.}$$

O.S

The simple interest formula is  $I = PRT$ .  
The present principle. The principle

⇒ (a) The starting amount.

O.B.

Find the rate of interest if the amount after 2 years of simple interest on a capital of Rs. 12000 is Rs. 14000

$$SI = A - P$$

A - Amount after 2 years = Rs. 14000

$$P = \text{Principal} = \text{Rs. } 12000$$

$$\therefore SI = 14000 - 12000 = 2000 \text{ Rs.}$$

$$\text{Now, } SI = \frac{P \times R \times T}{100} = \frac{2000}{100} = \frac{12000 \times R \times 2}{100}$$



# SILVER OAK UNIVERSITY

## EDUCATION TO INNOVATION

Date: \_\_\_\_\_ Page No. : \_\_\_\_\_

$$2000 = 24,000$$

$$R = \frac{2000}{24} = 8.33\% \text{ per annum}$$

rounded to 8%.

Q7. What will be the simple interest on Rs. 2000 at 9% per annum for the period from February 5, 1994 to April 18, 1994?

$$\Rightarrow SI = \frac{PRT}{100}$$

$$P = 2000 \text{ Rs.}$$

$$R = 9\%$$

$$T = \text{Time in years.}$$

From Feb 5, 1994, to April 18, 1994.

$$- \text{Feb 5 days} = 23 \text{ days.}$$

(1994 is a leap year so feb has 28 days)

March - 31 days.

- April 18 days.

$$\text{Total days} = 23 + 31 + 18 = 72 \text{ days.}$$

$$T = \frac{72}{365}$$

$$SI = PRT = 2000 \times 9 \times \frac{72}{365} = 12.42 \text{ Rs.}$$

$$100$$

$$12.42 \approx 12.4$$



# SILVER OAK UNIVERSITY

## EDUCATION TO INNOVATION

Date : \_\_\_\_\_ Page No. : 3

$$200 = 24R$$

$$R = \frac{200}{24} = 8.33\% \text{ Per annum}$$

compound to 8%.

Q.8. In what time will the simple interest on Rs. 1750 at 9% per annum be the same as the on Rs. 2500 at 10.5% per annum in 4 years?

$\Rightarrow$  Let time is 7 years  
According to question,  $\frac{P \times R \times T}{100} = \frac{P_2 \times R_2 \times T_2}{100}$

$$\frac{1750 \times 9 \times T}{100} = \frac{2500 \times 10.5 \times 4}{100}$$

$$T = \frac{2500 \times 10.5 \times 4}{1750 \times 9} = 6.66$$

(Q) 6 years & 8 months

Q9. There is 60% increase in an amount in 6 years at simple interest. What will be the compound interest of Rs. 1000 after 3 years at the same rate?

$$\Rightarrow SI = \frac{P \times R \times T}{100} \quad (Q) 3972$$

for 1, 60% increase,

$$SI = 0.60 \times P$$

using  $T = 6$  years

$$0.60 \times P = \frac{P \times R \times 6}{100}$$



# SILVER OAK UNIVERSITY

## EDUCATION TO INNOVATION

Date : ..... Page No. : .....

$$R = 0.60 \times 100$$

6

$$= 10\%$$

$$\text{C.I.} = A - P \left( 1 + \frac{R}{100} \right)^T = P \cdot (1 + R)^T$$
$$= 12000 \left( 1 + \frac{10}{100} \right)^3 = 12,000$$
$$= 3972$$

10. What will be the diff betw the simple interest & compound interest accrued on an amount of Rs. 12000 after 3 years.

(a) 12 P.C.P.A

(d) 862.612

$$\Rightarrow S.I. = \frac{P \times R \times T}{100}$$

$$= \frac{12000 \times 12 \times 3}{100}$$

$$= 6912 \text{ Rs.}$$

$$\text{C.I.} = A - P \left( 1 + \frac{R}{100} \right)^T = P \cdot (1 + R)^T$$
$$= 12000 \left( 1 + \frac{12}{100} \right)^3 = 12000$$

$$= 12000 \times \frac{28}{25} \times \frac{28}{25} \times \frac{28}{25} - 12000$$
$$= 7774.6176$$

$$\therefore \text{Difference} = 7774.6176 - 6912$$
$$\Rightarrow 862.6176$$