

Unit-2

(1) simple Interest = $\frac{PTR}{100}$

T = 15 yrs.

P = ~~100~~. Amount = x.

~~S.I.~~ = ~~x * 15~~

Amount after 15 yrs = 2x

2x = x + S.I.

2x = x + $\frac{(x)(15)(R)}{100}$

$x = \frac{x(15)(R)}{100}$

$\frac{100}{15} = R$.

R = 6.667.

(2) Amount (P) = RS. 2500/-

T = 6 yrs.

S.I. = 1875

S.I. = $\frac{PTR}{100}$

1875 = $\frac{2500(6)(R)}{100}$

$\frac{1875}{25 \times 6} = R$.

$R = \frac{375}{5 \times 6}$.

R = 12.5

$$\textcircled{B} \quad \text{Amount} = 6875$$

$$T = 6 \text{ yrs}$$

$$R = 12.6.$$

$$S.I. = \frac{PTR}{100}$$

$$= \frac{6875(6)(12.6)}{100}$$

$$= 5197.5.$$

$$S.I. = \text{Rs. } 5197.5/-$$

$$\textcircled{B} \quad P = 68,000$$

$$R = 16\frac{2}{3}\% = \frac{50}{3}\%$$

$$T = 9 \text{ months} = \frac{9}{12} = \frac{3}{4}.$$

$$S.I. = \frac{PTR}{100}$$

$$= \frac{68,000 \times \frac{3}{4} \times \frac{50}{3}}{100}$$

$$= \frac{68,000 \times 50}{4 \times 3 \times 100}$$

$$= \frac{680 \times 50}{4}$$

$$= 170 \times 50$$

$$= 8,500/-$$

$$S.I. = 8,500/-$$

$$(4) P = 3000.$$

$$R = 6 \frac{1}{4}\% = \frac{25}{4}\%$$

$$T = \frac{4}{28} + 31 + 18$$

$$= 73 \text{ days}$$

24

$$= \frac{73}{365} = \frac{1}{5}$$

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

$$= 3000 \times \frac{1}{5} \times \frac{25}{4}$$

100,

$$= \frac{3000 \times 25}{5 \times 4 \times 100}$$

$$= \frac{30 \times 5}{4}$$

$$S.I = 37.5/-$$

$$\begin{array}{r} 37.5 \\ \times 150 \\ \hline 12 \\ 30 \\ 28 \\ \hline 20 \end{array}$$

$$(5) \text{ Let Amount (P)} = x.$$

$$R = 13 \frac{1}{2}\% = \frac{27}{2}\%$$

$$T = 4 \text{ yrs}$$

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

$$2502.50 = \frac{x(4)(27)}{2 \times 100} + x$$

$$\begin{array}{r} 250250 \\ 1 \\ 27 \\ \times 2 \\ \hline 54 \end{array}$$

$$\frac{250250}{27 \times 2} - x$$

$$x = 4634.25$$

$$\text{Amount} = 4634.25/-$$

$$250250 = x(4)(27) + 100x$$

$$250250 = 54x + 100x$$

$$250250 = 154x$$

$$x = \frac{250250}{154}$$

$$x = 1625/-$$

$$\underline{161} \quad T = 3 \text{ yrs}$$

$$P = 7800/-$$

$$R = 5\%$$

$$\text{Compound Interest} = P \left(1 + \frac{R}{100} \right)^t$$

-Amount

$$= P \left(1 + \frac{5}{100} \right)^3$$

$$= 7800 \left(\frac{105}{100} \right)^3$$

$$= 7800 \times \frac{105}{100} \times \frac{105}{100} \times \frac{105}{100}$$

$$= 78 \times 11025$$

$$= \frac{859950}{100 \times 100}$$

$$= 85.995$$

$$= 7800 \times \frac{21}{20} \times \frac{21}{20} \times \frac{21}{20}$$

$$= \frac{39 \times (21)^3}{4}$$

$$\text{Amount} = 9029.475/-$$

$$C.I = A - P$$

$$= 9029.475 - 7800$$

$$= \text{Rs. } 1229.475/-$$

(9) ~~P = Rs. 8000~~, $P = 8000/-$

$$R = 15\%$$

$$T = 2 \text{ yrs } 4 \text{ months}$$

$$= 2 \frac{4}{12} \text{ yrs and } \frac{4}{12} \text{ yrs}$$

$$= 2 \frac{1}{3} \text{ yrs and } \frac{1}{3} \text{ yrs}$$

$$\begin{array}{r} 2+4 \\ \hline 12 \\ 3 \end{array}$$

Compounded Annually.

(10) Amount = $P \left[1 + \frac{R}{100} \right]^n$

$$= P \left[1 + \frac{15}{100} \right]^{7 \frac{1}{3}}$$

$$\begin{array}{r} 5 \\ 3) 15 \\ \hline 20 \end{array}$$

$$= 8000$$

$$= 8000 \times \left[1 + \frac{15}{100} \right]^2 \times \left[1 + \frac{1}{3} \times \frac{15}{100} \right]$$

$$= 8000 \left[1 + \frac{3}{20} \right]^2 \times \left[1 + \frac{1}{8} \times \frac{3}{20} \right]$$

$$\begin{array}{r} 1+1 \\ 20 \end{array}$$

$$= 8000 \left[\frac{23}{20} \right] \left[\frac{23}{20} \right] \left[\frac{21}{20} \right]$$

$$= \underline{\underline{23 \times 23 \times 21}}$$

$$= 23 \times 23 \times 21$$

$$= 11109.$$

$$C.I = \text{Amount} - P$$

$$= 11109 - 8000$$

$$C.I = 3109/-$$

$$\underline{(8)} \quad P = 10,000 \quad T = 2 \text{ yrs} \quad R = 4\%.$$

Compounded half-yearly

$$\text{Amount} = P \left[1 + \frac{R/2}{100} \right]^{2n}$$

$$= 10000 \left[1 + \frac{\frac{4}{2}}{100} \right]^{2(2)}$$

$$= 10000 \left[1 + \frac{2}{100} \right]^4$$

$$= 10,000 \left[1 + \frac{1}{50} \right]^4$$

$$= 10000 \left[\frac{51}{50} \right] \times \left[\frac{51}{50} \right] \times \left[\frac{51}{50} \right] \times \left[\frac{51}{50} \right]$$

$$= \frac{51 \times 51 \times 51 \times 51}{25 \times 25}$$

$$= \frac{6765201}{625}$$

$$= 10824.32$$

$$C.I = \text{Amount} - P$$

$$= 10824.32 - 10,000$$

$$= 824.32/-$$

$$R = 20\%$$

$$T = 9 \text{ months} = \frac{9}{12} = \frac{3}{4} \text{ yrs}$$

Compounded Quarterly

$$\text{Amount} = P \left[1 + \frac{R/4}{100} \right]^{4n}$$

$$= 16000 \left[1 + \frac{(20/4)}{100} \right]^{4 \cdot \left(\frac{3}{4} \right)}$$

$$= 16,000 \left[1 + \frac{5}{100} \right]^3$$

$$= 16,000 \left[1 + \frac{1}{20} \right]^3$$

$$= 16,000 \times \frac{21}{20} \times \frac{21}{20} \times \frac{21}{20}$$

$$= 2 \times 21 \times 21 \times 21$$

$$= 18522$$

$$C.I = 18522 - 16,000$$

$$C.I = 2522 -$$

$$\begin{array}{r} 15 \\ 4 \sqrt{60} \\ \quad 4 \\ \hline 20 \end{array}$$

$$(10) P = 40,000/-$$

$$T = 4 \text{ yrs}$$

$$S.I = 24,000.$$

$$24,000 = \frac{P \cdot T \cdot R}{100}$$

$$24,000 = \frac{40,000 \times 4 \times R}{100}$$

$$R = \frac{24000}{400 \times 4} = \frac{60}{4} = 15\%$$

$$\begin{array}{r} 86 \\ 4 \sqrt{24} \\ \quad 24 \\ \hline 0 \end{array}$$

Compound Interest :-

$$\text{Amount} = P \left[1 + \frac{R}{100} \right]^T$$

$$= 40,000 \left[1 + \frac{15}{100} \right]^4$$

$$= 40,000 \times \frac{23}{20} \times \frac{23}{20} \times \frac{23}{20} \times \frac{23}{20}$$

$$= \frac{23 \times 23 \times 23 \times 23}{4}$$

$$= 69,960.25$$

$$C^o I = 69,960.25 - 40,000$$

$$= 29,960.25$$