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H Principal = 30000
R = 7%

= 30000 + 4347 =
34347

$\Rightarrow 34437 = 30000\left(1+\frac{7}{100}\right)^n$

$\Rightarrow \frac{34347}{30000} = \left(\frac{107}{100}\right)^n$

$\Rightarrow \frac{11449}{10000} = \left(\frac{107}{100}\right)^n$

$\Rightarrow \left(\frac{107}{100}\right)^n = \left(\frac{107}{100}\right)^n$

$\Rightarrow n = 2$

$\Rightarrow C.I. = 16000$

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2) Compound = 16000

Quaterly = $\frac{1}{4}$ year = $\frac{12}{4}$ months = 3 months

% per annum = 20%

% quaterly = $\frac{20}{4}$ = 5%

$A = 16000\left(1+\frac{5}{100}\right)^3$

$= 16000 \times \left(\frac{105}{100}\right)^3$

$16000 \times \left(\frac{21}{20}\right)^3$

2

$\frac{16000 \times 21 \times 21 \times 21}{8000}$

$= ₹18522$

$\therefore C.I. = 18522 - 16000 = 2522$

3) Compounded yearly = $5000\left(1+\frac{4}{100}\right)\left(1+\frac{2}{100}\right)$

$= 5000\left(\frac{104}{100}\right)\left(1+\frac{1}{50}\right)$

$= 5000\left(\frac{104}{100} \times \frac{102}{100}\right)$

$= 5000 \times \frac{10608}{10000}$ 5304

$= 5000 \times \frac{10608}{10000}$

$= 5304$

Compounded half yearly $= 5000\left(1+\frac{2}{100}\right)^3$

$= 5000 \times \left(\frac{102}{100}\right)^3$

$5000 \times \left(\frac{51}{50}\right)^3$

$5000 \times 51 \times 51 \times 51$

$50 \times 50 \times 50$

5306.04

13302

25

$5306.04 - 5304 =$

2.04

∴ The difference is 2.04

4) $r = 8\%$

$t = 2$ years

$SI = \frac{PTR}{100} = \frac{P \times 8 \times 2}{100} = \frac{4P}{25}$

$C.I. = A - P = P\left(1 + \frac{r}{100}\right)^t - P$

$= P\left(\frac{108}{100}\right)^2 - P$

$P\left(\frac{27}{25}\right) - P$

$P\left(\left(\frac{27 \times 27}{25 \times 25}\right) - 1\right)$

$P\left(\frac{729}{625} - 1\right)$

$P\left(\frac{729 - 625}{625}\right)$

$P\left(\frac{104}{625}\right)$

Amount $= C.I. - S.I. = 16$

$\Rightarrow \frac{104P}{625} - \frac{4P}{25} = 16$

$\Rightarrow \frac{104 - 100P}{625} = 16 \Rightarrow P = \frac{16 \times 625}{4}$

$\Rightarrow \frac{4P}{625} = 16 \Rightarrow P = 2500$

5) $R = 5\%$

$T = 3$ year

$SI = 12000$

$$\text{Sum} = \frac{12000 \times 100}{3 \times 5} = 80000$$

$$CI = ?$$

$$= 80000\left(1 + \frac{5}{100}\right)^3$$

$$= 80000\left(\frac{21}{20}\right)^3$$

$$= 80000 \times \frac{21 \times 21 \times 21}{20 \times 20 \times 20}$$

$$21 \times 21 \times 21$$

$$92610$$

$$D = 92610 - 80000 = 12610$$

6) 1 year = 8375 - 7350 = 1025.

$$R = \frac{PTR}{147\ 100}$$

$$= \frac{7350 \times 147 \times R}{100}$$

$$= \frac{147}{2}$$

$$\Rightarrow 1225 = \frac{147 \times R}{2}$$

$$\Rightarrow 1225 \times 2 = 147 \times R$$

$$\Rightarrow R = \frac{2450}{147}$$

$$\Rightarrow \frac{50}{3} = R$$

$$\Rightarrow R = \frac{50}{3}\%$$

7) $A \Rightarrow P\left(1 + \frac{\frac{50}{3}}{100}\right)$

$$\Rightarrow 7350 = P\left(1 + \frac{50 \times 100}{3 \times 100}\right)^2$$

$$\Rightarrow 7350 = P\left(1 + \frac{1}{6}\right)^2$$

$$\Rightarrow 7350 = P\left(\frac{7}{6}\right)^2$$

$$\Rightarrow 7350 \times \frac{36}{49} = P$$

$$\Rightarrow 150 \times 36 = P$$

$$\Rightarrow 5400 = P$$

7) Let the sum lee = ₹P

R = 10%

T = 2 years

$SI = \frac{P \times 10 \times 2}{100} = \frac{P}{5}$

Interest calculated on basis of half yearly.

$= P\left(1+\frac{5}{100}\right)^4 - P$

$P\left(\frac{100+5}{100}\right)^4 - P$

$P\left(\frac{105}{100}\right)^4 - P$

$P\left(\frac{21}{20}\right)^4 - P$

ATQ

$P\left(\frac{21}{20}\right)^4 - P - \frac{P}{5} = 124.05$

$P\left(\frac{21\times21\times21\times21}{20\times20\times20\times20}\right) - \frac{P}{5} = 124.05$

$P\left(\frac{194481}{160000}\right) - \frac{P}{5} = 124.05$

$P\left(\frac{194481 - 160000 - 32000}{160000}\right) = 124.05$

$P = \left(\frac{194481 - 192000}{160000}\right) = \frac{124.05}{100}$

$\frac{2481}{160000} \times P = \frac{1205}{100}$

$P = \frac{1205}{100} \times \frac{160000}{2481}$

$= 9000$

8) Let the sum lee $= x$

$CI = x\left(1+\frac{10}{100}\right)^2$

$x\left(\frac{11}{10}\right)^2$

$\frac{121x}{100}$

$SI = \frac{x \times 10 \times 2}{100} = \frac{x}{5}$

$CI - SI = \frac{x}{100}$

$\Rightarrow \frac{x}{100} = 631$

$\Rightarrow x = 631 \times 100$

$\Rightarrow x = 63100$

9) R% Pa $= 18000\left(1+\frac{R}{100}\right)^2 - 18000\left(\frac{R^2}{100}\right)$

CI − SI $= 405$

$$\Rightarrow 18000\left(\left(1+\frac{r}{100}\right)^2-1\right)-\frac{18000\times 2r}{100}$$

$$\Rightarrow 18000\left(\left(\frac{100+r}{100}\right)^2-1\right)-\frac{18000\times 2r}{100}$$

$$\Rightarrow 18000\left(\frac{10000+r^2+200r}{10000}-1\right)-360r=405$$

$$\Rightarrow \frac{18r^2}{10}+360r-360r=405$$

$$\Rightarrow \frac{18r^2}{10}=405 \Rightarrow r^2=225$$

$$\Rightarrow r^2=\frac{405\times 10}{18} \Rightarrow r=\sqrt{225}$$

$$\Rightarrow r^2=4050/18 \Rightarrow r=15$$

225

10) $P = 1000$ $R = 15\%$

$A = 1331$

Let the time be $= n$ years

Therefore $1000\left(1+\frac{10}{100}\right)^n = 1331$

$1000 \times \left(\frac{11}{10}\right)^n = 1331$

$\left(\frac{11}{10}\right)^n = \frac{1331}{1000}$

$n = 1331$

$n = \frac{1331}{100}$

∴ Here we know that $\left(\frac{11}{10}\right)^3 = \frac{1331}{1000}$ ∴ So the time is 3 years