① P = ₹ 30,000 R = 7% CI = 43347 − 30,000

$T = \frac{R}{100}$ A = 30,000 + 4347 = 34347

$\Rightarrow 34347 = 30000\left(1+\frac{7}{100}\right)^T$

$\Rightarrow \left(\frac{107}{100}\right)^T = \frac{34347}{30,000}$ $\Rightarrow \left(\frac{107}{100}\right)^T = \frac{11449}{10000}$

$\Rightarrow \left(\frac{107}{100}\right)^T = \left(\frac{107}{100}\right)^2$

$\therefore T = 2$

② $P\left[\left(1+\frac{R}{100\times 4}\right)^{4T}-1\right]$

$\Rightarrow 16000\left[\left(1+\frac{20}{400}\right)^3+1\right]$ $= 16000\left[\left(1+\frac{1}{20}\right)^3-1\right]$

$= 16000\left[\left(\frac{420}{400}\right)^3-1\right]$ $= 16000\left[\left(\frac{21}{20}\right)^3-1\right]$

$= 16000\left[\frac{67808}{6400}\right]$ $= 16000\left[\frac{9261}{8000}-1\right]$

$= 16000 \times \frac{67808}{6400}$ $= 16000\left[\frac{1261}{8000}\right]$

$= 16000 \times \frac{1261}{8000} = 3522$

③ yearly — Half yearly —

$P\left[\left(1+\frac{R}{100}\right)^T-1\right]$ $5000\left[\left(1+\frac{4}{100}\right)^1-1\right]$ $P\left[\left(1+\frac{4}{200}\right)^1-1\right]$

$= 5000\left[\left(1+\frac{1}{25}\right)^1-1\right]$ $P\left[\left(1+\frac{4}{200}\right)^1-1\right]$

$= 5000\left[\left(\frac{26}{25}\right)^1-1\right]$ $5000\left[\left(1+\frac{1}{50}\right)^1-1\right]$

$= 5000\left[\frac{1}{25}\right]$ $5000\left[\frac{51}{50}-1\right]$

$= 5000 \times \frac{1}{25} = ₹200$ $5000 \times \frac{1}{50} = ₹100$

Difference = 200 − 100 = ₹100

④ a $CI - SI = \frac{PR^2}{10000}$

$\Rightarrow \frac{P\times 64}{10000} = 16$ $\Rightarrow P\times 64 = 160000$ $\Rightarrow P = \frac{160000}{64} = ₹2500$

⑤ $SI = \frac{2x\times 5\times 3}{100} = 1200 \Rightarrow 2x\times 15 = 120000 \Rightarrow 2x = \frac{120000}{15} = ₹8000$

$CI = 8000\left[\left(1+\frac{5}{100}\right)^3-1\right]$

$= 8000\left[\left(1+\frac{1}{20}\right)^3-1\right]$

$= 8000\left[\left(\frac{21}{20}\right)^3-1\right] = 8000\left[\frac{9261}{8000}-1\right] = 8000 \times \frac{1261}{8000} = ₹1261$

6 $A = 7350 \quad T = 2y \quad A = 8575 \quad T = 3y$

$$R = \left[\left(\frac{8575}{7350}\right)^{\frac{1}{1}} - 1\right] \times 100\%$$

$$\therefore \left[\frac{121}{100} - 1\right] \times 100\%$$

$$\therefore \frac{21}{100} \times 100 = 21\%$$

7 $CI - SI = ₹ 124.05, \quad T = 2y \quad R = 10\%$ Compounded half yearly

$$CI - SI \quad 124.05 = \frac{P \times 100}{10000} \times = 124.05 = P = 12,405$$

8 $$\frac{P \times 100}{10000} = 631 \Rightarrow P = 63,100$$ (of second year)

9 $CI - SI = ₹ 405 \quad P = ₹ 18000 \quad T = 2 \text{ years} \quad R = ?$

$$CI - SI = P\left(\frac{R}{100}\right)^2 = \frac{R \times SI}{2 \times 100} \Rightarrow$$

$$\Rightarrow 405 = 18000\left(\frac{R}{100}\right)^2 \qquad 405 = 18000\left(\frac{R}{100}\right)^2$$

$$\therefore \frac{405}{18000} = \left(\frac{R}{100}\right)^2$$

$$\frac{9}{400} = \frac{R^2}{10000}$$

$$\frac{9}{400} \times 10000 = R^2$$

$$9 = R^2 \Rightarrow 3 = R \Rightarrow 3\% = R\%$$

10 $$\frac{100 \times I}{P \times R} \Rightarrow \frac{100 \times 331}{1000 \times 10} = \frac{331}{100} = ₹ 3.31$$