Question:1

Find the simple interest and the amount when:

Principal = Rs 6400, rate = 6% p.a. and time = 2 years

Solution:

$\mathrm{P}=\mathrm{Rs.}\ 6400,\ \mathrm{R}=6\%,\ \mathrm{T}=2\ \text{years}$

$\mathrm{S.I.}\ =\frac{\mathrm{P}\times\mathrm{R}\times\mathrm{T}}{100}=\frac{6400\times6\times2}{100}$ $=6400+768=\ \mathrm{Rs.}\ 7168$

$=\mathrm{Rs.}\ 768$

$\mathrm{Amount}=\mathrm{P}+\mathrm{S.I.}$

Question:2

Find the simple interest and the amount when:

Principal = Rs 2650, rate = 8% p.a. and time = $2\frac{1}{2}$ years

Solution:

$\mathrm{P}=\mathrm{Rs.}\ 2650,\ \mathrm{R}=8\,\%,\ \mathrm{T}=2\frac{1}{2}\ \text{years}=\frac{5}{2}\ \text{years}$

$\mathrm{S.I.}=\ \frac{\mathrm{P}\times\mathrm{R}\times\mathrm{T}}{100}=\frac{2650\times8\times5}{100\times2}$

$=\mathrm{Rs.}\ 530$

$\mathrm{Amount}=\mathrm{P}+\mathrm{S.I.}$ $=2650+530=\mathrm{Rs.}\ 3180$

Question:3

Find the simple interest and the amount when:

Principal = Rs 1500, rate = 12% p.a. and time = 3 years 3 months.

Solution:

$\mathrm{P}=\mathrm{Rs.}1500,\ \mathrm{R}=12\%,\ \mathrm{T}=3+\frac{3}{12}=\frac{13}{4}\ \text{years}$

$\mathrm{S.I.}=\frac{\mathrm{P}\times\mathrm{R}\times\mathrm{T}}{100}=\frac{1500\times12\times13}{100\times4}$ $=1500+585$ $=\mathrm{Rs}\ .\ 2085$

$=\mathrm{Rs}\ .\ 585$

$\mathrm{Amount}=\mathrm{P}+\mathrm{S.I.}$

Question:4

Find the simple interest and the amount when:

Principal = Rs 9600, rate = $7\frac{1}{2}\%$ p.a. and time = 5 months.

Solution:

$\mathrm{P}=\ \mathrm{Rs.}\ 9600\mathrm{R}=7\frac{1}{2}\,\%\,\mathrm{T}=5\ \text{months}\ =\frac{5}{12}\ \text{years}\,\mathrm{S.I.}=\frac{\mathrm{P}\times\mathrm{R}\times\mathrm{T}}{100}\ =\frac{9600\times15\times5}{100\times2\times12}\ =\mathrm{Rs.}\ 300\mathrm{Amount}=\ \mathrm{P}+\ \mathrm{S.I.}=9600+300=\mathrm{Rs.}\ 9900$

Question:5

Find the simple interest and the amount when:

Principal = Rs 5000, rate = 9% p.a. and time = 146 days.

Solution:

$\mathrm{P}=\mathrm{Rs.}5000\ ,\ \mathrm{R}=9\%\ ,\ \mathrm{T}=146\ \text{days}=\frac{146}{365}\ \text{years}$

$\mathrm{S}\ .\mathrm{I.}=\frac{\mathrm{P}\times\mathrm{R}\times\mathrm{T}}{100}=\frac{5000\times9\times146}{100\times365}$ $=5000+180=\mathrm{Rs.}\ 5180$

$=\mathrm{Rs.}\ 180$

$\mathrm{Amount}=\mathrm{P}+\mathrm{S}\ .\mathrm{I.}$

Question:6

Find the time when:

Principal = Rs 6400, SI = Rs 1152 and rate = 6% p.a.

Solution:

$\mathrm{P}=\mathrm{Rs.}\ 6400,\ \mathrm{S.I.}=\mathrm{Rs.}\ 1152,\ \mathrm{R}=6\,\%$

$\mathrm{T}=\frac{\mathrm{S.I.}\times100}{\mathrm{P}\times\mathrm{R}}=\frac{1152\times\cancel{100}}{64\cancel{00}\times6}$ $=3\ \text{years}$

$=\frac{1152}{384}$

Question:7

Find the time when:

Principal = Rs 9540, SI = Rs 1908 and rate = 8% p.a.

Solution:

$$\begin{aligned}&\mathrm{P}=\text{Rs. } 9540\ ,\ \ \mathrm{S.I.}=\text{Rs. } 1908, \mathrm{R}=8\%\\ &\mathrm{T}=\frac{\mathrm{S.I.}\times 100}{\mathrm{P}\times \mathrm{R}}=\frac{1908\times 100}{9540\times 8}\\ &=\frac{10}{4}\\ &=2\frac{1}{2}\text{ years}\end{aligned}$$

Question:8

Find the time when:

Principal = Rs 5000, amount = Rs 6450 and rate = 12% p.a.

Solution:

$$\begin{aligned}&\mathrm{P}=\text{Rs. } 5000,\ \ \mathrm{A}=\text{Rs. } 6450,\ \mathrm{R}=12\%\\ &\mathrm{S.I.}=\mathrm{A}-\mathrm{P}\\ &=6450-5000\\ &=\text{Rs. } 1450\end{aligned}$$

$$\begin{aligned}&\mathrm{T}=\frac{\mathrm{S.I}\times 100}{\mathrm{P}\times \mathrm{R}}=\frac{1450\times 100}{5000\times 12}\\ &=\frac{29}{12}\\ &=2\frac{5}{12}\\ &=2\text{ years } 5\text{ months}\end{aligned}$$

Question:9

Find the rate when:

Principal = Rs 8250, SI = Rs 1100 and time = 2 years.

Solution:

$$\begin{aligned}&\mathrm{P}\ =\ \text{Rs. } 8250,\ \mathrm{S.I.}=\text{Rs. } 1100,\ \mathrm{T}=2\text{ years}\\ &\mathrm{R}=\frac{\mathrm{S.I.}\times 100}{\mathrm{P}\times \mathrm{T}}=\frac{1100\times 100}{8250\times 2}\\ &=\frac{1100}{165}=6.67\%\end{aligned}$$

Question:10

Find the rate when:

Principal = Rs 5200, SI = Rs 975 and time = $2\frac{1}{2}$ years.

Solution:

$$\begin{aligned}&\mathrm{P}=\text{Rs. } 5200\ ,\ \mathrm{S.I.}=\text{Rs. } 975\quad [\ \mathrm{T}=2\tfrac{1}{2}\text{ years}=\tfrac{5}{2}\text{ years}]\\ &\mathrm{R}=\frac{\mathrm{S.I.}\times 100}{\mathrm{P}\times \mathrm{T}}=\frac{975\times 100\times 2}{5200\times 5}\qquad =7.5\%\\ &=\frac{195}{26}\end{aligned}$$

Question:11

Find the rate when:

Principal = Rs 3560, amount = Rs 4521.20 and time = 3 years.

Solution:

$$\begin{aligned}&\mathrm{P}=\text{Rs. } 3560\ ,\ \mathrm{A}=\text{Rs. } 4521.20\ ,\ \mathrm{T}=3\text{ years}\\ &\mathrm{S.I.}=\ \mathrm{A}-\mathrm{P}\ =4521.20-3560\\ &=\text{Rs. } 961.20\\ &\mathrm{R}=\frac{\mathrm{S.I.}\times 100}{\mathrm{P}\times \mathrm{T}}=\frac{961.20\times 100}{3560\times 3}\\ &=\frac{96120\times 100}{100\times 3560\times 3}\\ &=9\%\end{aligned}$$

Question:12

Shanta borrowed Rs 6000 from the State Bank of India for 3 years 8 months at 12% per annum. What amount will clear off her debt?

Solution:

$\mathrm{P} = \text{Rs } 6000,\ \mathrm{R} = 12\%,\ \mathrm{T}$=3 years 8 months $= 3\frac{8}{12} = \frac{44}{12}$ years

$$\text{S.I.} = \frac{\mathrm{P}\times\mathrm{R}\times\mathrm{T}}{100} = \frac{6000\times12\times44}{100\times12} = \text{Rs } 2640$$

$$\mathrm{A} = \mathrm{P} + \text{S.I.}$$
$$= 6000 + 2640$$
$$= \text{Rs } 8640$$

Question:13

Hari borrowed Rs 12600 from a moneylender at 15% per annum simple interest. After 3 years, he paid Rs 7070 and gave a goat to clear off the debt. What is the cost of the goat?

Solution:

$\mathrm{P} = \text{Rs. } 12600 \qquad \mathrm{R} = 15\% \qquad \mathrm{T} = 3 \text{ years}$

$$\text{S.I.} = \frac{\mathrm{P}\times\mathrm{R}\times\mathrm{T}}{100} = \frac{12600\times15\times3}{100}$$
$$= \text{Rs. } 5670 \qquad = \text{Rs. } 11200$$
$$\mathrm{A} = \text{Rs. } 12600 + \text{Rs. } 5670 = \text{Rs. } 18270$$

Hari had to pay Rs. 18270 to the money lender, but he paid Rs. 7070 and a goat.

$$\therefore \text{Cost of the goat } = \text{Rs. } 18270 - \text{Rs. } 7070$$

Question:14

The simple interest on a certain sum for 3 years at 10% per annum is Rs 829.50. Find the sum.

Solution:

Let the sum be Rs. P.

$\text{S.I.} = \text{Rs. } 829.50,\ \mathrm{T} = 3 \text{ years}, \mathrm{R} = 10\%$

$$\text{Now, } \mathrm{P} = \frac{\text{S.I}\times100}{\mathrm{R}\times\mathrm{T}} = 2765 \text{ Hence, the sum is Rs. } 2765.$$
$$= \frac{829.50\times100}{10\times3}$$
$$= \frac{8295}{3}$$

Question:15

A sum when reckoned at $7\frac{1}{2}\%$ per annum amounts to Rs 3920 in 3 years. Find the sum

Solution:

Let the required sum be Rs. x.

$\mathrm{A} = \text{Rs. } 3920,\ \mathrm{R} = 7\frac{1}{2}\%,\ \mathrm{T} = 3 \text{ years}$

Now,

$$\text{Now, S.I.} = \frac{\mathrm{P}\times\mathrm{R}\times\mathrm{T}}{100} = \frac{x\times15\times3}{2\times100} = \frac{9x}{40}$$
$$\mathrm{A} = \mathrm{P} + \text{S.I.}$$
$$= x + \frac{9x}{40} = \frac{40x+9x}{40} = \frac{49x}{40}$$

But the amount is Rs. 3920.

$$\Rightarrow \frac{49x}{40} = 3920$$
$$\Rightarrow x = \frac{3920\times40}{49} = \frac{156800}{49} = 3200$$

Hence, the required sum is Rs. 3200.

Question:16

A sum of money put at 11% per annum amounts to Rs 4491 in 2 years 3 months. What will it amount to in 3 years at the same rate?

Solution:

Given: R=11%, T=2 years 3 months $= 2 + \frac{3}{12} = \frac{27}{12}$ years

Let the required sum be Rs. x.

$$\text{S.I.} = \frac{\mathrm{P}\times\mathrm{R}\times\mathrm{T}}{100} = \frac{x\times11\times\cancel{27}^{9}}{100\times\cancel{12}_{4}} = \frac{99x}{400}$$
$$\mathrm{A} = \mathrm{P} + \text{S.I.}$$
$$= x + \frac{99x}{400} = \frac{400x+99x}{400} = \frac{499x}{400}$$

But the amount is Rs. 4491.

$$\Rightarrow \frac{499x}{400} = 4491$$
$$\Rightarrow x = \frac{4491\times400}{499} = \frac{1796400}{499} = 3600$$

Hence, the required sum is Rs. 3600.

$$\therefore \text{S.I.} = \frac{\mathrm{P}\times\mathrm{R}\times\mathrm{T}}{100} = \frac{3600\times11\times3}{100} = \text{Rs. } 1188$$
$$\therefore \text{Amount} = \mathrm{P} + \text{S.I.} = 3600 + 1188$$
$$= \text{Rs. } 4788$$

Question:17

A sum of money invested at 8% per annum amounts to Rs 12122 in 2 years. What will it amount to in 2 years 8 months at 9% per annum?

Solution:

Let the required sum be Rs. x.

$$\text{S.I.}=\frac{\text{P}\times\text{R}\times\text{T}}{100}=\frac{x\times8\times2}{100}=\frac{16x}{100}$$
$$\text{A}=\text{P}+\text{S.I.}$$
$$=x+\frac{16x}{100}=\frac{100x+16x}{100}=\frac{116x}{100}$$
But the amount is Rs. 12122.
$$\Rightarrow\frac{116x}{100}=12122$$
$$\Rightarrow x=\frac{12122\times100}{116}=10450$$

$$\text{Now, S.I.}=\frac{\text{P}\times\text{R}\times\text{T}}{100}=\frac{10450\times3\times2}{100\times1}=\text{Rs. } 2508$$
$$\therefore \text{A}=\text{P}+\text{S.I.}$$
$$=\text{Rs. } 10450+\text{Rs. } 2508$$
$$=\text{Rs. } 12958$$

Question:18

At what rate per cent per annum will Rs 3600 amount to Rs 4734 in $3\frac{1}{2}$ years?

Solution:

$$\text{P}=\text{Rs. } 3600 \quad \text{A}=\text{Rs. } 4734 \quad \text{T}=3\frac{1}{2}=\frac{7}{2}\text{ years}$$
$$\text{S.I.}=\text{A}-\text{P}$$
$$=4734-3600$$
$$=\text{Rs. } 1134$$
$$\text{R}=\frac{\text{S.I.}\times100}{\text{P}\times\text{T}}=\frac{1134\times100\times2}{3600\times7}=9\%$$

Question:19

If Rs 640 amounts to Rs 768 in 2 years 6 months, what will Rs 850 amount to in 3 years at the same rate per cent per annum?

Solution:

$$\text{P}=\text{Rs. } 640,\ \text{A}=\text{Rs. } 768,\ \text{T}=2\text{ years }6\text{ months}=\frac{5}{2}\text{ years}$$
$$\text{S.I.}=\text{A}-\text{P}$$
$$=768-640$$
$$=\text{Rs. } 128$$
$$\text{R}=\frac{\text{S.I.}\times100}{\text{P}\times\text{T}}=\frac{128\times100\times2}{640\times5}=8\%$$

$$\text{P}=\text{Rs. } 850,\ \text{R}=8\%,\ \text{T}=3\text{ years}$$
$$\therefore \text{S.I.}=\frac{\text{P}\times\text{R}\times\text{T}}{100}=\frac{850\times8\times3}{100}=\frac{2040}{10}=\text{Rs. } 204$$
$$\therefore \text{A}=\text{P}+\text{S.I.}$$
$$=850+204$$
$$=\text{Rs. } 1054$$

Question:20

In what time will Rs 5600 amount to Rs 6720 at 8% per annum?

Solution:

$$\text{P}=\text{Rs. } 5600,\ \text{A}=\text{Rs. } 6720,\ \text{R}=8\%$$
$$\text{S.I.}=\text{A}-\text{P}$$
$$=6720-5600$$
$$=\text{Rs. } 1120$$
$$\text{T}=\frac{\text{S.I.}\times100}{\text{P}\times\text{R}}=\frac{1120\times100}{5600\times8}=\frac{1120}{448}=2\frac{1}{2}\text{ years}$$

Question:21

A sum of money becomes $\frac{8}{5}$ of itself in 5 years at a certain rate of simple interest. Find the rate of interest.

Solution:

Let the sum be Rs. x .
$$\text{Amount}=\frac{8x}{5}$$
$$\therefore \text{S.I.}=\text{A}-\text{P}=\frac{8x}{5}-x$$
$$=\frac{3x}{5}$$
Let the rate be R%.
$$\text{S.I.}=\frac{\text{P}\times\text{R}\times\text{T}}{100}$$
Hence, the rate of interest is 12%.
$$\Rightarrow\frac{3x}{5}=\frac{x\times\text{R}\times5}{100}$$
$$\Rightarrow 3x\times20=\text{R}\times x\times5$$
$$\Rightarrow \text{R}=\frac{3\times x\times20}{x\times5}=12$$

Question:22

A sum of money lent at simple interest amounts to Rs 783 in 2 years and to Rs 837 in 3 years. Find the sum and the rate per cent per annum.

Solution:

$$\text{Amount in 3 years} = (\text{Principal} + \text{S.I. for 3 years}) = \text{Rs. } 837$$
$$\text{Amount in 2 years} = (\text{Principal} + \text{S.I. for 2 years}) = \text{Rs. } 783$$
$$\text{On subtracting :}$$
$$\text{S.I. for 1 year} = (837 - 783) = \text{Rs. } 54$$
$$\text{S.I. for 2 years} = \left(\frac{54}{1} \times 2\right) = \text{Rs. } 108$$
$$\therefore \text{Sum} = \text{Amount for 2 years} - \text{S.I. for 2 years}$$
$$= 783 - 108$$
$$= \text{Rs. } 675$$

$$\text{P} = \text{Rs. } 675,\ \text{S.I.} = \text{Rs. } 108 \text{ and } \text{T} = 2 \text{ years}$$
$$\text{R} = \frac{\text{S.I.} \times 100}{\text{P} \times \text{T}}$$
$$= \frac{108 \times \cancel{100}^{2}}{\cancel{675}_{27} \times \cancel{2}_{1}}$$
$$= 8\%$$

Question:23

A sum of money lent at simple interest amount to Rs 4745 in 3 years and to Rs 5475 in 5 years. Find the sum and the rate per cent per annum.

Solution:

$$\text{Amount in 5 years} = (\text{Principal} + \text{S.I. for 5 years}) = \text{Rs. } 5475$$
$$\text{Amount in 3 years} = (\text{Principal} + \text{S.I. for 3 years}) = \text{Rs. } 4745$$
$$\text{On subtracting :}$$
$$\text{S.I. for 2 years} = (5475 - 4745) = \text{Rs. } 730$$
$$\text{S.I. for 3 years} = \left(\frac{730}{2} \times 3\right) = \text{Rs. } 1095$$
$$\therefore \text{Sum} = \text{Amount for 3 years} - \text{S.I. for 3 years}$$
$$= 4745 - 1095$$
$$= \text{Rs. } 3650$$
$$\text{P=Rs. } 3650,\ \text{S.I.=Rs. } 1095,\ \text{T=3 years}$$
$$\text{R} = \frac{\text{S.I.} \times 100}{\text{P} \times \text{T}}$$
$$= \frac{1095 \times 100}{3650 \times 3}$$
$$= 10\%$$

Question:24

Divide Rs 3000 into two parts such that the simple interest on the first part for 4 years at 8% per annum is equal to the simple interest on the second part for 2 years at 9% per annum.

Solution:

$$\text{Let the first part be Rs. } x.$$
$$\text{Second part } = (3000 - x)$$
$$\therefore \text{S.I. on x at } 8\% \text{ per annum for 4 years} = \frac{x \times 8 \times \cancel{4}^{\cancel{2}^{1}}}{\cancel{100}_{\cancel{50}_{25}}} = \frac{8x}{25}$$
$$\text{S.I. on } (3000 - x) \text{ at } 9\% \text{ per annum} = \frac{(3000 - x) \times 9 \times \cancel{2}^{1}}{\cancel{100}_{50}}$$
$$= \frac{27000 - 9x}{50}$$
$$\therefore \frac{8x}{25} = \frac{27000 - 9x}{50}$$
$$\text{Second part } = (3000 - 1080) = \text{Rs. } 1920$$
$$\Rightarrow 8x = \frac{(27000 - 9x) \times \cancel{25}^{1}}{\cancel{50}_{2}}$$
$$\Rightarrow 16x = 27000 - 9x$$
$$\Rightarrow 16x + 9x = 27000$$
$$\Rightarrow x = \frac{\cancel{27000}^{1080}}{\cancel{25}_{1}} = 1080$$
$$\therefore \text{First part} = \text{Rs.}1080$$

Question:25

Divide Rs 3600 into two parts such that if one part be lent at 9% per annum and the other at 10% per annum, the total annum income is Rs 333.

Solution:

$$\text{Let the first part be Rs. } x.$$
$$\text{Second part } = (3600 - x)$$
$$\therefore \text{S.I. on x at } 9\,\% \text{ per annum for 1 years} = \frac{x \times 9 \times 1}{100} = \frac{9x}{100}$$
$$\text{And, S.I. on } (3600 - x) \text{ at } 10\,\% \text{ per annum} = \frac{\left(3600 - x\right) \times 1 \times \cancel{10}^{1}}{\cancel{10}} = \frac{3600 - x}{10}$$
$$\therefore \frac{9x}{100} + \frac{3600 - x}{10} = 333$$
$$\Rightarrow \frac{9x + 36000 - 10x}{100} = 333$$
$$\Rightarrow -x + 36000 = 33300$$
$$\Rightarrow -x = 33300 - 36000$$
$$\Rightarrow -x = -2700$$
$$\Rightarrow x = 2700$$
$$\text{First part} = \text{Rs. } 2700$$

$$\text{Second part } = (3600 - 2700) = \text{Rs. } 900$$

Question:26

Mark ✓ against the correct answer

The simple interest on Rs 6250 at 4% per annum for 6 months is

a Rs 125
b Rs 150
c Rs 175
d Rs 135

Solution:

(a) Rs. 125

$$\text{Principal } = \text{Rs. } 6250$$
$$\text{Simple Interest} = 4\% \text{ per annum}$$
$$\text{Time } = 6 \text{ months} = \frac{1}{2} \text{ years}$$
$$\text{Simple Interest} = \frac{\text{P} \times \text{R} \times \text{T}}{100}$$
$$\text{Simple Interest} = \frac{6250 \times 4 \times 1}{100 \times 2}$$
$$\text{Simple Interest} = \frac{250}{2} = \text{Rs. } 125$$

Question:27

Mark ✓ against the correct answer

A sum amounts to Rs 3605 in 219 days at 5% per annum. The sum is

a Rs 3250
b Rs 3500
c Rs 3400
d Rs 3550

Solution:

b Rs.3500

$$\text{Amount} = \text{Rs. } 3605$$
$$\text{Time} = \frac{219}{365} \text{ days} = \frac{219}{365} \text{ days}$$
$$\text{Rate} = 5\% \text{ per annum}$$
$$\text{Amount} = \text{Sum} + \frac{\text{Sum} \times \text{Rate} \times \text{Time}}{100}$$
$$\text{Amount} = \text{Sum}\ (1 + \frac{\text{Rate} \times \text{Time}}{100}\ )$$
$$\text{Sum} = \frac{3605}{1 + \frac{5}{100} \times \frac{219}{365}} = \frac{3605 \times 36500}{37595}$$
$$\text{Sum} = \text{Rs. } 3500$$

Question:28

Mark ✓ against the correct answer

At simple interest a sum becomes $\frac{6}{5}$ of itself in $2\frac{1}{2}$ years. The rate of interest per annum is

a 6%
b $7\frac{1}{2}\%$
c 8%
d 9%

Solution:

c 8%

$$\text{Let the sum be Rs. } x.$$
$$\text{Rate of interest} = r\%$$
$$\text{Time}=2\tfrac{1}{2} \text{ years}=\tfrac{5}{2} \text{ years}$$
$$\text{Amount}=\tfrac{6}{5}\times \text{Sum}$$
$$\text{Rate}=?$$
$$\text{Amount} = \tfrac{6}{5}\times\text{Sum}$$
$$\text{Principal} + \text{S.I.} = \text{Amount}$$
$$\text{Principal}+\tfrac{\text{Principal}\times\text{Rate}\times\text{Time}}{100}=\tfrac{6}{5}\times\text{Principal}$$
$$\Rightarrow x+\tfrac{xr\times5}{100\times2}=\tfrac{6}{5}x$$
$$\Rightarrow x\left(1+\tfrac{5r}{100\times2}\right)=\tfrac{6}{5}x$$
$$\Rightarrow 1+\tfrac{r}{40}=\tfrac{6}{5}$$
$$\Rightarrow r = 40\times\tfrac{1}{5}$$
$$\Rightarrow r = 8$$
$$\text{So, the rate of interest is } 8\%.$$

Question:29

Mark ✓ against the correct answer

In what time will Rs 8000 amount to Rs 8360 at 6% per annum simple interest?

a 8 months

b 9 months

c $1\tfrac{1}{4}$ years

d $1\tfrac{1}{2}$ years

Solution:

b 9 months

$$4.(b)$$
$$\text{Let the time be } t \text{ years.}$$
$$\text{Principal} = \text{Rs. } 8000$$
$$\text{Amount} = \text{Rs. } 8360$$
$$\text{Rate } = 6\,\% \text{ per annum}$$
$$\text{Amount} = \text{Principal}\left(1+\tfrac{\text{Rate}\times\text{Time}}{100}\right)$$
$$\tfrac{8360}{8000}=1+\tfrac{6\times t}{100}$$
$$\Rightarrow \tfrac{8360}{8000}-1=\tfrac{6t}{100}$$
$$\Rightarrow t=\left(\tfrac{8360-8000}{8000}\right)\times\tfrac{100}{6}$$
$$=\tfrac{360}{8000}\times\tfrac{100}{6}$$
$$=\tfrac{6}{8}\times 12 \text{ months}$$
$$=9 \text{ months}$$

Question:30

Mark ✓ against the correct answer

At what rate per cent annum simple interest will a sum double itself in 10 years?

a 8%

b 10%

c 12%

d $12\tfrac{1}{2}\%$

Solution:

b 10%

$$\text{Let the sum be Rs. } x \text{ and the rate be } r\%.$$
$$\text{A/Q:}$$
$$\text{Amount} = 2x$$
$$\Rightarrow P+S.I.=2x \Rightarrow P+\tfrac{P\times R\times T}{100}=2x$$
$$\Rightarrow x(1+\tfrac{r\times10}{100})=2x$$
$$\Rightarrow \tfrac{100+10r}{100}=2 \quad \Rightarrow 10r=100 \Rightarrow r=\tfrac{100}{10}\Rightarrow r=10$$
$$\Rightarrow 10r=200-100$$

Question:31

Mark ✓ against the correct answer

The simple interest at *x*% per annum for *x* years will be Rs *x* on a sum of

a Rs *x*

b Rs 100*x*

c Rs $\left(\frac{100}{x}\right)$
d Rs $\left(\frac{100}{x^2}\right)$
Solution:
c Rs. $\left(\frac{100}{x}\right)$

$$\text{Simple Interest}=\text{Rs. } x$$
$$\text{Rate}= x\,\%\text{ per annum}$$
$$\text{Time} = x \text{ years}$$
$$\text{Simple Interest}=\frac{\text{Principal}\times\text{Rate}\times\text{Time}}{100}$$
$$\Rightarrow \cancel{x} = \frac{\text{Principal}\times\cancel{x}\times x}{100}$$
$$\Rightarrow \text{Principal} = \text{Rs. } \frac{100}{x}$$

Question:32
Mark ✓ against the correct answer
The simple interest on a sum for 5 years is $\frac{2}{5}$ of the sum. The rate per cent per annum is

a 10%
b 8%
c 6%
d $12\frac{1}{2}\%$
Solution:
b 8%

$$\text{Time}=5 \text{ years}$$
$$\text{Simple interest}=\frac{2}{5}\text{P}$$
$$\Rightarrow \frac{\text{P}\times\text{Rate}\times\text{Time}}{100}=\frac{2}{5}\text{P} \Rightarrow Rate = \frac{2\times100}{5\times5} \Rightarrow \text{Rate}=8\%$$
$$\Rightarrow \frac{\text{Rate}\times5}{100}=\frac{2}{5}$$

Question:33
Mark ✓ against the correct answer
A borrows Rs 8000 at 12% per annum simple interest and B borrows Rs 9100 at 10% per annum simple interest. In how many years will their amounts be equal?

a 18 years
b 20 years
c 22 years
d 24 years
Solution:
c 22 years

$$R1 = 12\% R_2 = 10\% P_1 = Rs.8000 P_2 = Rs.9100 \text{Let their amount } s \text{ be equal in } T \text{ years.} \text{Amount}_1 = S.I._1 + P_1 = \frac{P_1\times R_1\times T}{100} + P_1 = \frac{8000\times}{10}$$

Question:34
Mark ✓ against the correct answer
A sum of Rs 600 amounts of Rs 720 in 4 years. What will it amount to if the rate of interest is increased by 2%?

a Rs 724
b Rs 648
c Rs 768
d Rs 792
Solution:
c Rs. 768

$$\text{Let the rate be } R\,\% \text{S. I.} = \text{A} - \text{P} = 720 - 600 = \text{Rs. } 120 \text{Time} = 4 \text{ years} R = \frac{100\times SI}{P\times T} \; R = \frac{100\times120}{600\times4} = 5 \text{Rate of interest} = 5\% \text{Now, R} = \left(5+2\right)\% =$$

Question:35
Mark ✓ against the correct answer
x, *y* and *z* are three sums of money such that *y* is the simple interest on *x* and *z* is the simple interest on *y* for the same time and same rate. Which of the

following is correct?

a $xyz = 1$
b $z^2 = xy$
c $x^2 = yz$
d $y^2 = zx$
Solution:
d $y^2 = zx$

$y = \text{S.I. on } x = \frac{x \times R \times T}{100} \quad \ldots(\text{i}) \quad z = \text{S.I. on } y = \frac{y \times R \times T}{100} \quad \ldots(\text{ii}) \text{ Dividing equation (i) by (ii)} :\Rightarrow \frac{y}{z} = \left(\frac{x \times R \times T}{100} \times \frac{100}{y \times R \times T}\right) \Rightarrow \frac{y}{z} = \frac{x}{y} \Rightarrow y^2 = xz$

Question:36
Mark ✓ against the correct answer
In how much time would the simple interest on a certain sum be 0.125 times the principal at 10% per annum?

a $1\frac{1}{4}$ years
b $1\frac{3}{4}$ years
c $2\frac{1}{4}$ years
d $2\frac{3}{4}$ years
Solution:
a $1\frac{1}{4}$ years

$$\begin{aligned} &\text{Rate} = 10\% \text{ per annum} \\ &\text{Simple Interest} = 0.125 \times \text{Principal} \\ \Rightarrow &\frac{\text{Principal} \times \text{Rate} \times \text{Time}}{100} = 0.125 \times \text{Principal} \\ &\Rightarrow \frac{\text{Time}}{10} = 0.125 \\ &\Rightarrow \text{Time} = 1.25 = 1\frac{1}{4} \text{ years} \end{aligned}$$

Question:37
Mark ✓ against the correct answer
At which sum will the simple interest at the rate of per annum be Rs 210 in years?

a Rs 1580
b Rs 2400
c Rs 2800
d none of these
Solution:
b Rs 2400

Question:38
Find the simple interest on Rs 6300 at 8% per annum for 8 months.
Solution:

Question:39
What sum will amount to Rs 6600 in 2 years at 10% per annum simple interest?
Solution:

Question:40
At what rate per cent per annum simple interest will Rs 3625 amount to Rs 4495 in 2 years?
Solution:

Question:41
In what time will Rs 3600 amount to Rs 4410 at 9% per annum simple interest?
Solution:

Question:42

At what rate per cent per annum simple interest will a sum double itself in 12 years?
Solution:

Question:43
A sum of money becomes of itself in 6 years at a certain rate of simple interest. Find the rate of interest.
Solution:

Question:44
Mark ✓ against the correct answer
At simple interest a sum becomes of itself in years. The rate of interest per annum is
a 7%
b 8%
c 9%
d 12%
Solution:
c 9%

Question:45
Mark ✓ against the correct answer
A sum amounts to Rs 3626 in 219 days at 6% per annum simple interest. The sum is

a Rs 3000
b Rs 3200
c Rs 3500
d Rs 3600
Solution:
c 3500

Question:46
Mark ✓ against the correct answer
In what time will Rs 6000 amount to Rs 6360 at 8% per annum simple interest?

a 9 months
b 8 months
c years
d years
Solution:
a 9 months

Question:47
Mark ✓ against the correct answer
The simple interest on a sum for 5 yars is of the sum. The rate per cent per annum is
a 8%
b 10%
c 12%
d
Solution:

Question:48
Mark ✓ against the correct answer
The simple interest at *x*% per annum for *x* years will be Rs *x* on a sum of

a Rs *x*
b Rs 10 *x*
c Rs 100 *x*
d Rs
Solution:

Question:49

Mark ✓ against the correct answer

At what rate per cent per annum simple interest will a sum double itself in 10 years?

a 8%
b 10%
c 12%
d

Solution:

Question:50

Fill in the blanks.

i
ii
iii At .....% per annum simple interest a sum doubles itself in 10 years.
iv At simple interest a sum becomes of itself in years. The rate of interest is .....% per annum.

Solution:

Question:51

Write 'T' for true and 'F' for false

i Simple interest on Rs *x* for *x* years is Rs *x*. Then, the rate of interest is *x*% per annum.
ii Rate = .
iii A sum doubles itself at simple interest at 10% per annum in 10 years.
iv Simple interest on Rs 1000 at 5% per annum for 73 days is Rs 10.

Solution: