SIMPLE INTEREST

1. John invested a sum of money at an annual simple interest rate of 10%. At the end of four years the amount invested plus interest earned was Rs. 770. The amount invested was :
   (a) Rs. 650 (b) Rs. 350
   (c) Rs. 550 (d) Rs. 500
2. In what time will Rs. 1860 amount to 2,641.20 at simple interest 12% per annum?
   (a) 3 years (b) $3\frac{1}{2}$ years
   (c) 4 years (d) $4\frac{1}{2}$ years
3. In how many years will a sum of money double itself at 12% per annum?
   (a) 8 yrs. 6 months (b) 6 yrs. 9 months
   (c) 8 yrs. 4 months (d) 7 yrs. 6 months
4. Simple interest on a certain sum for 6 years is $\frac{9}{25}$ of the sum. The rate of interest is
   (a) 6% (b) $6\frac{1}{2}\%$
   (c) 8% (d) $8\frac{1}{2}\%$
5. On a certain sum, the simple interest at the end of $6\frac{1}{4}$ years becomes $\frac{3}{8}$ of the sum. The rate of interest is :
   (a) 5% (b) 6%
   (c) 7% (d) 8%
6. Ratio of the principal and the amount after 1 year is 10 : 12. Then the rate of interest per annum is:
   (a) 12% (b) 16%
   (c) 18% (d) 20%
7. A sum was lent at simple interest at a certain rate for 2 years. Had it been lent at 3% higher rate, it would have fetched Rs. 300 more. The original sum of money was :
   (a) Rs. 5000 (b) Rs. 6000
   (c) Rs. 7000 (d) Rs. 4000
8. Rs. 12000 is divided into two parts such that the simple interest on the first part for 3 years at 12% per annum may be equal to the simple interest on the second part for $4\frac{1}{2}$ years at 16% per annum. The ratio of the first part to the second part is:
   (a) 2 : 1 (b) 1 : 2
   (c) 2 : 3 (d) 3 : 2
9. A sum of ₹ 7,930 is divided into 3 parts and given at loan at 5% simple interest to A, B and C for 2, 3 and 4 years respectively. If the amounts of all three are equal after their respective periods of loan, then the A received a loan of
   (a) ₹2,800 (b) ₹3,050
   (c) ₹2,750 (d) ₹2,760
10. If a man receives on one fourth of his capital 3% interest, on two third 5% and on the remaining 11%, the percentage he receives on the whole is :
    (a) 4.5% (b) 5%
    (c) 5.5% (d) 5.2%
11. A sum of Rs. 2,400 amounts to Rs. 3,264 in 4 years at a certain rate of simple interest. If the rate of interest is increased by 1% the same sum in the same time would amount to
    (a) Rs. 3,288 (b) Rs. 3,312
    (c) Rs. 3,340 (d) Rs. 3,360
12. Nitin borrowed some money at the rate of 6% p.a. for the first three years, 9% p.a. for the next five years and 13% p.a. for the period beyond eight years. If the total interest paid by him at the end of eleven years is Rs. 8,160, the money borrowed by him (in Rs.) was
    (a) 12,000 (b) 6,000
    (c) 8,000 (d) 10,000
13. A certain sum of money lent out at simple interest amounts to Rs. 1380 in 3 years and Rs. 1500 in 5 years. Find the rate per cent per annum.
    (a) 3% (b) 3.5%
    (c) 4% (d) 5%
14. If a sum of money amounts to Rs. 12, 900 and Rs. 14, 250 at the end of 4th year and 5th year respectively at a certain rate of simple interest, then

the rate of interest is :

(a) 10% (b) 12%

(c) 18% (d) 20%

15. A sum of money lent out at simple interest amounts to ₹ 720 after 2 years and ₹ 1020 after a further period of 5 years. Find the principal.

(a) ₹ 6000 (b) ₹ 600

(c) ₹ 1740 (d) ₹ 120

16. Ram deposited a certain sum of money in a company at 12% per annum simple interest for 4 years and deposited equal amount in fixed deposit in a bank for 5 years at 15% per annum simple interest. If the difference in the interest from two sources is ‘ 1350 then the sum deposited in each case is:

(a) ₹ 3000 (b) ₹4000

(c) ₹6500 (d) ₹5000

17. Prakash lends a part of Rs. 20,000 at 8% simple interest and remaining at $\frac{4}{3}$ % simple interest. His total income after a year was Rs. 800. Find the sum lent at 8%.

(a) Rs. 8,000 (b) Rs. 12,000

(c) Rs. 6,000 (d) Rs. 10,000

18. Two equal sum were lent out at 7% and 5% S.I respectively. The interest earned on the two loans add up to Rs. 960 for 4 years. The total sum lent out is

(a) Rs. 3500 (b) Rs. 2500

(c) Rs. 2000 (d) Rs. 3000

19. In what time will Rs. 8000, at 3% per annum, produce the same interest as Rs. 6000 does in 5 years at 4% simple interest is?

(a) 5 years (b) 6 years

(c) 3 years (d) 4 years

20. The amount Rs. 2,100 became Rs. 2,352 in 2 years at simple interest. If the interest rate is decreased by 1%, what is the new interest ?

(a) Rs. 210 (b) Rs. 220

(c) Rs. 242 (d) Rs. 252

HINTS & SOLUTIONS

1. (c)

ALTERNATE :

$$10\% = \frac{1\text{®}\ \text{Interest}}{10\text{®}\ \text{Principal}}$$

Interest in 4 years = 1 × 4 = 4

Amount = (interest + principal)

= 4 + 10 = 14

According to the question,

14 units = 770

$$1 \text{ unit} = \frac{770}{14}$$

$$10 \text{ units} = \frac{770}{14} \times 10 = \text{Rs. } 550$$

The amount invested = Rs. 550

2. (b)

Rate% = 12%, Principal = Rs. 1860

Amount = Rs. 2641.20

Interest = Rs. (2641.20 – 1860) = Rs. 781.20

By using formula,

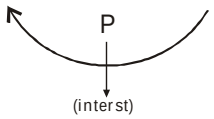
Required time =

$$\frac{781.20 \times 100}{1860 \times 12} = 3\frac{1}{2} \text{yrs}$$

3. (c)

Principal Amount

P 2P



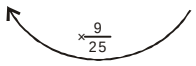
Rate% = 12%

$$\text{Required time} = \frac{P}{P} \times \frac{100}{12} = 8\frac{1}{3} \text{ years} = 8 \text{ years } 4 \text{ months}$$

4. (a)

Principal Interest

25 9



Let rate of interest = R%

Time = 6 years

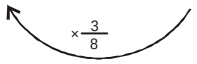
By using formula,

$$R = \frac{9}{25} \times \frac{100}{6} = \mathbf{6\%}$$

5. (b)

Principal Interest

8 3



$$\text{Time of } 6\frac{1}{4} \text{ years} = \frac{25}{4} \text{ years}$$

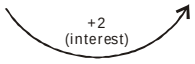
By using formula,

$$\text{Required Rate\%} = \frac{3}{8} \times \frac{100}{25} \times 4 = \mathbf{6\%}$$

6. (d)

Principal Amol

10 12



Required rate of interest

$$= \frac{2}{10} \times \frac{100}{1} = 20\%$$

7. (a) Extra interest Rate% = 2 × 3 = 6%

According to the question,

6% of sum = Rs. 300

$$1\% \text{ of sum} = \text{Rs. } \frac{300}{6} = \text{Rs. } 50$$

Total sum = 50 × 100 = Rs. 5000

8. (a) Let two parts are P_1 and P_2 respectively,

According to the question,

$$\frac{P_1 \times 3 \times 12}{100} = \frac{P_2 \times 9 \times 16}{2 \times 100}$$

$$36\ P_1 = 72\ P_2$$

$$\frac{P_1}{P_2} = \frac{72}{36} = \frac{2}{1}$$

P1 : P2 = 2 : 1

Hence, required radio = **2 : 1**

9. (d) According to the question.

A B C

$A+\left(\frac{A\times5\times2}{100}\right)=B+\left(\frac{B\times5\times3}{100}\right)=C+\left(\frac{C\times5\times4}{100}\right)$

110A = 115B = 120C

22A = 23B = 24C

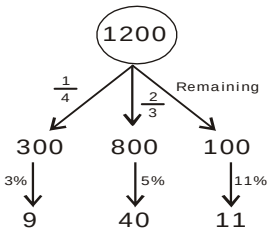
Ratio of Amount (By using L.C.M of 22,23 and 24)

276 : 264 : 253

A's loan (A) = $\frac{276}{793}\times 7930 = 2760$

10. (b) Let total capital = 1200 units

According to the question,



Total interest = (9+40+11) = 60

Required rate% =

$\frac{60}{1200}\times 100 = 5\%$

Alternate :-

Let the total amount = 12

Total average rate of interest

$=\frac{(3\times 3)\% + (8\times 5)\% + (1\times 11)}{12}\%$

= **5%**

11. (d) **Note:-** For detailed explanation of such type of questions follow the so-lution of previous questions.

Increased in rates in 4 years (4 o"kksZa esa of/Zr nj) = 1 × 4 = 4%

Hence, interst = $\frac{2400\times 4}{100}$ = Rs. 96

Total amount after 4 years = Rs. (3264 + 96) = Rs. 3360

12. (c)

Alternate:-

Note :- In such type of questions to save your valuable time follow the given below method.

Let principal = Rs. 100

Total interest

$=\frac{100\times 6\times 3}{100}+\frac{100\times 9\times 5}{100}+\frac{100\times 13\times 3}{100}$

= 18 + 45 + 39 = 102 units

According to the question,

102 units = Rs. 8160

1 unit = Rs. $\frac{8160}{102}$ = Rs. 80

100 units = Rs. 8000

Hence sum = Rs. 8000

Alternate:-

Total rate of interest in 11 years = (6×3)% + (5×9)% + (3×13)%

102% = 8160

100% = 8000

13.

Amount		Time	
1380	×120	3	+2 years
1500		5	

(d) Interest paid in 2 years = Rs. 120

Interest paid in 1 year = Rs. 60

Interest paid in 3 years = 60 ×3 = Rs. 180

Principal = Rs. (1380 – 180) = Rs. 1200

Required Rate% =

$\frac{60}{1200}\times 100 = 5\%$

14. (c)

Amount (₹)		Time (years)	
12900	+ 1350	4	+1 years
14250	:	5	

Interest paid by the person in 1 year = Rs. 1350

Interest paid by the person in 4 years

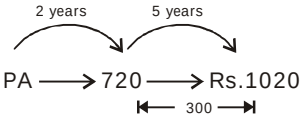
= Rs. 1350 × 4 = Rs. 5400

Principal = Rs. (12900 – 5400)

= Rs. 7500

Rate (nj)% = $\frac{1350}{7500} \times 100 = 18\%$

15. (b)



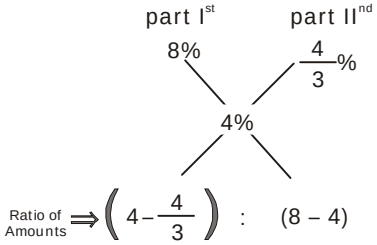
- According to figure
- SI for 5 years = Rs. 300
- SI for 1 year = Rs. 60
- SI for 2 year = 60 × 2 = 120
- Principal amount = Amount after 2 years – 2 years SI = 720 – 120
- Principal amount = Rs. 600

16. (d) Difference between their rates he gained from both boys
- 15 × 5% – 12 × 4%
- 75% – 48%
- 27% = 1350 (Given)
- 100% = ₹ 5000

17. (a) Avg. rate of interest

$= \frac{8000}{20000} \times 100 = 4\%$

By alligation Rule



$\frac{8}{3} : 4$

2 : 3

Required sum = $\frac{20000}{(2+3)} \times 2$

= **Rs. 8000**

18. (c)

Alternate:-

Total rate of interest he gained
- (7 + 5) × 4%
- 48% = 960 (given)
- 100% = 2000

∴ total sum = 2000

19. (a) Let time = t years

According to the question,

$\frac{8000 \times 3 \times t}{100} = \frac{6000 \times 5 \times 4}{100}$

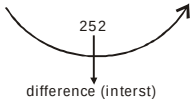
240 t = 1200

t = 5 years

Hence required time = 5 years

20. (a) According to the question,

Principal	Amount
2100	2352



Time = 2 years,

Let Rate = R%

$R = \frac{252}{2100} \times \frac{100}{2} = 6\%$

New rate of interest = (6 – 1) = 5%

New interest = $\frac{2100 \times 5 \times 2}{100}$ = Rs. 210