

# Quantitative Aptitude

## Simple Interest

### Level-1

**Q1** If the principal is Rs.20000 and the time for which this principal invested is 5 years. If he gets simple interest of Rs.12000 after 5 years, then find the rate of interest.

- (A) 10 (B) 15  
(C) 12 (D) 16  
(E) None of these

**Q2** If the simple interest on a sum for 3 years at the rate of 12.5% is Rs. 3000 then find the sum invested?

- (A) Rs. 2400 (B) Rs. 3200  
(C) Rs. 8000 (D) Rs. 3400  
(E) Rs. 5400

**Q3** A scheme offers Rs.62720 amount from the principal of a certain amount after 2 years and the rate of the interest given is 12%. Find the sum invested.

- (A) 50000 (B) 70000  
(C) 80000 (D) 20000  
(E) 30000

**Q4** A person invests a sum of money at 6% per annum for 5 years and after 5 years he gets simple interest of Rs.9000. Find the sum of money he invested.

- (A) 25000 (B) 20000  
(C) 30000 (D) 22000  
(E) None of these

**Q5** If the total interest after  $3\frac{7}{9}$  years is Rs.200 and the rate of interest calculated on the principal is  $Rs.28\frac{2}{9}\%$ , then find the principal.

- (A) 8000 (B) 5000  
(C) 2000 (D) 1000  
(E) None of these

**Q6**

A man took loan from a bank at the rate of 15% p.a. simple interest. After 3 years he had to pay Rs. 14500 amount. Find the principal amount borrowed by him.

- (A) 9500 (B) 10000  
(C) 12000 (D) 14000  
(E) None of these

**Q7** A man took a loan from a bank at the rate of 10% p.a. simple interest. After 4 years he had to pay Rs. 8000 interest only for the period. Find the principal amount borrowed by him.

- (A) 25000 (B) 15000  
(C) 20000 (D) 12000  
(E) None of these

**Q8** A certain sum of money becomes four times of itself in 6 years at simple interest. In how many years will it be six times?

- (A) 25 years (B) 23 years  
(C) 10 years (D) 40 years  
(E) None of these

**Q9** A sum of Rs.15000 is invested in the simple interest for 2 years is Rs.6000. the rate of interest being the same in both the year. Find the rate of interest.

- (A) 15% (B) 20%  
(C) 22% (D) 25%  
(E) 10%

**Q10** At what rate of interest will the sum becomes 7 times in 12 years?

- (A) 50%  
(B) 75%  
(C) 25%  
(D) 15%  
(E) None of these



**Q11 At what rate of interest will the sum becomes double in 12.5 years?**

- (A) 15% (B) 12%  
(C) 8% (D) 10%  
(E) 11%

**Q12** In how many years will the sum becomes 5 times of itself at the rate of 5% per annum simple interest?

- (A) A. 80 years (B) B. 25 years  
(C) C. 50 years (D) D. 75 years  
(E) E. 52 years

**Q13 The First S.I. on a certain sum of money for 2 years at 5% per annum is half the other S.I. on Rs. 8000 for 2 years at 10% per annum. Find the sum placed on First S.I.?**

- (A) 7500 (B) 8500  
(C) 8000 (D) 9000  
(E) None of these

**Q14** A scheme offers Rs.46200 amount from the principal of certain amount after 9 years and the rate of the interest given is 6%. Find the simple interest offering by the scheme after 9 years on Principal.

- (A) 25000 (B) 15000  
(C) 16200 (D) 12000  
(E) 16000

**Q15** Mohan invested Rs.50000 on simple interest and the rate of interest is 16/3% per annum. If the sum is invested for 3/4 years, then find the total amount he will get after 3/4 years.

- (A) 50000 (B) 52000  
(C) 56000 (D) 58000  
(E) None of these

**Q16** A person has Fixed deposit fund in which he deposits money every year of Rs.5000 and this

fund is for 5 years. If the rate of interest he gets from this mutual fund is 10% per annum, then find the total amount he will get after the completion of the time period of the fund.

- (A) 31500 (B) 33500  
(C) 32500 (D) 34500  
(E) None of these

**Q17** A scheme offers Rs.51500 amount from the principal of certain amount after 4/3 years and the rate of the interest given is 9/4%. Find the simple interest offering by the scheme after 4/3 years on Principal.

- (A) 1200 (B) 1800  
(C) 1500 (D) 2000  
(E) 1300

**Q18** A sum was put at simple interest at a certain rate for 5 years. Had it been put at 2% higher rate, it would have fetched Rs 480 more. Find the sum.

- (A) 3000 (B) 3600  
(C) 4800 (D) 5000  
(E) None of these

**Q19** A sum was put at simple interest at a certain rate for 8 years . Had it been put at 4% higher rate , it would have fetched Rs 400 more. What was the Sum?

- (A) 1250 (B) 1200  
(C) 1500 (D) 800  
(E) None of these

**Q20** The difference between the simple interest received from two different sources on Rs 4800 for 3 years is Rs 432. Find the difference between their rates of interest.

- (A) 3% (B) 5%  
(C) 6% (D) 2%  
(E) None of these



## Level-2

- Q1** A person has a total Rs.15000 invested in two schemes and from both schemes he gets a total interest of 17%. If from one scheme he gets 18% and from another scheme he gets 15%, then find the amount he invested in each scheme.  
(A) 10000,5000 (B) 8000,5000  
(C) 10000, 8000 (D) 8000,2000  
(E) None of these
- Q2** A person borrows Rs.12000 for 2 years at 8% p.a. simple interest. He immediately lends it to another person at 10% per annum for 2 years. Find his gain in the transaction.  
(A) 450 (B) 540  
(C) 480 (D) 400  
(E) None of these
- Q3** Given that the simple interest accrued from a sum of Rs. 2800 at an annual rate of 10% over 3 years is Rs. x and Rs. 1736 is the simple interest gained from an investment of Rs. 6200 at a 14% annual rate over a period of y years, can you determine the value of  $x/y$ ?  
(A) 420 (B) 490  
(C) 500 (D) 340  
(E) None of these
- Q4** A certain amount earns simple interest of Rs.8000 after 4 years. Had the interest been 5% more, If the principal amount is Rs.40000, then find how much more interest would it have earned?  
(A) 6000 (B) 5000  
(C) 8000 (D) 2000  
(E) 7000
- Q5** raman invested some amount of money on simple interest for 10 years at some rate. If the money becomes double then what is the rate of interest per annum?  
(A) 7% (B) 5%  
(C) 9% (D) 10%  
(E) None of these
- Q6** If the principal is Rs.20000 and the rate of interest on this principal is  $(x+2)$  % per annum and the time period is x years and the simple interest on this principal is Rs.16000, then find the value of x.  
(A) 5 (B) 6  
(C) 8 (D) 2  
(E) 4
- Q7** Kristopher borrows a sum of Rs. 72000 from Maria at 14% rate of simple interest for three years. He added sum more money to the borrowed sum and lent it to Jenelia at 16% per annum for 3 years if he earns Rs. 5520 in whole process, then find how much he added.  
(A) 2500 (B) 3500  
(C) 3000 (D) 2800  
(E) None of these
- Q8** 1500 rupees is invested in scheme A at R% p.a. simple interest. Another amount  $(1500 - x)$  is invested in scheme B at  $2R$  % p.a. simple interest. After four years, interest earned from scheme A is 25% less than that of scheme B. Find x.  
(A) 500 (B) 600  
(C) 900 (D) 1000  
(E) none of these
- Q9** 3000 rupees is invested in a scheme X at R% p.a. simple interest. Another amount  $(3000 - z)$  is invested in scheme Y at  $2R$  % p.a. simple interest. After 4 years, interest earned from scheme X is 25% less than that of scheme Y. Find the value of z?  
(A) 3000 (B) 2000  
(C) 1000 (D) 2500  
(E) none of these
- Q10** A certain amount earns simple interest of Rs 1280 after 8 years. Had the interest been 4%



more, If the principal amount is Rs 2000, then find how much more interest would it have earned?

- (A) 560 (B) 480  
(C) 640 (D) 540  
(E) None of these

**Q11** A certain amount earns simple interest of Rs.3000 after 5 years. Had the interest been 3% more, If the principal amount is Rs.10000, then find how much interest would it have earned?

- (A) 4200 (B) 4500  
(C) 4800 (D) 5200  
(E) 3600

**Q12** SBI lent a sum of Rs.10000 in the beginning of a year at a certain rate of interest. After 2 years, a sum of Rs. 6000 more is lent but at the rate twice the former. At the end of third year, Rs. 2520 is earned as interest from both the loans. What was the increased rate of interest?

- (A) 12 (B) 15  
(C) 10 (D) 18  
(E) None of these

**Q13** A person has some loan of Rs.10000 which was taken at 12% rate of simple interest for 5 years and after 5 years he was unable to pay the loan completely. He pays only 6.25% of the total amount and he pays the remaining amount after 1 year. If the rate of interest for that extra 1 year is 10%, then find the total amount he paid after 6 years from taking the loan.

- (A) 17500 (B) 18500  
(C) 16500 (D) 12500  
(E) None of these

**Q14** A person invested an amount of Rs. 20000 divided in two different schemes A and B at the simple interest rate of 10% p.a. and 12% p.a. respectively. If the total amount of simple interest earned in 2 years is Rs. 4320, what was the amount invested in Scheme B?

- (A) 4000 (B) 5000

- (C) 6000 (D) 8000  
(E) None of these

**Q15** Manish has a mutual fund in which he deposits money every year of Rs.10000 and this mutual fund is for 3 years. If the rate of interest he gets from this mutual fund is 5% per annum simple interest, then find the total amount he will get after the completion of the time period of the mutual fund.

- (A) 32000 (B) 30000  
(C) 33000 (D) 35000  
(E) 37000

**Q16** A certain amount was borrowed from a bank by Vishal and Vikas and they lent the total amount to Vishnu at 2% more simple interest. After paying the interest to the bank, the amount earned by Vishal after 4 years is Rs 1250 more than the amount earned by Vikas for the same years. find how much amount Vishal borrowed more than the amount borrowed by Vikas?

- (A) 34550 (B) 12345  
(C) 15625 (D) 12655  
(E) None of these

**Q17** A sum of Rs 1600 is lent at the beginning of a year at a certain rate of interest. After 1 year, a sum of Rs 400 more is lent but at the rate twice the former. At the end of second year, Rs 200 is earned as interest from both the loans. What was the original rate of interest?

- (A) 5 (B) 4  
(C) 3 (D) 8  
(E) None of these

**Q18** A sum of Rs.10000 is lent in the beginning of a year at a certain rate of interest. After 1 year, a sum of Rs. 5000 more is lent. At the end of second year, Rs. 1250 is earned as interest from both the loans. What was the original rate of interest?

- (A) 5 (B) 6  
(C) 8 (D) 7  
(E) 11



**Q19** A sum of Rs.12000 is lent at the beginning of a year at a certain rate of interest. After 1 year, a sum of Rs. 8000 more is lent. At the end of second year, Rs. 3200 is earned as interest from both the loans. What was the original rate of interest?

- (A) 15 (B) 12  
(C) 10 (D) 18  
(E) 5

**Q20** Mr. Modi is planning for the higher education expenses of his two sons aged 8 years and 12

years. He plans to divide Rs 24 lakhs into two parts and invest at the 10% simple interest rate plan such that his sons may have access to the same amount when they reach the age of 18 years. What approximate amount should he invest for his younger son?

- (A) 9 lakh  
(B) 10.67 lakh  
(C) 12.60 lakh  
(D) Cannot be determined  
(E) None of these



## Level-3

- Q1** Mr. Shane invested the total amount of Rs. 16500 for two years in two schemes X and Y. Under scheme X, the simple interest rate was 10 percent per annum, and under scheme Y, the simple interest rate was 12 percent per annum. If the total amount of interest earned Rs. 3620, what was the amount invested in scheme Y?  
(A) Rs. 6000 (B) Rs. 7000  
(C) Rs. 8000 (D) Rs. 8600  
(E) Rs. 9000
- Q2** A farmer has a loan of Rs.10000 which was taken at 5% rate of simple interest for 2 years and after 2 years he was unable to pay the loan completely. He pays only 9.09% of the total amount and he pays a further amount after 1 year. If the rate of interest for that extra 1 year is 20%, then find the total amount he paid after 3 years from taking the loan.  
(A) 13000 (B) 10000  
(C) 15000 (D) 18000  
(E) None of these
- Q3** A farmer has some loan of Rs.15000 which was taken at 8% rate of simple interest for 4 years and after 4 years he was unable to pay the loan completely. He pays only 20% of the total amount and he pays a further amount after 1 year. If the rate of interest for that extra 1 year is 30%, then find the total amount he paid after 5 years from taking the loan.  
(A) 24552 (B) 21542  
(C) 19500 (D) 16540  
(E) None of these
- Q4** Five years ago my friend won Rs.250000 in the lottery. He purchased a bike for Rs.100000. He puts 50% of the remaining money in a scheme offering simple interest at 10% per annum. If today, he sells off the bike at a certain percent of his original value and withdraws his entire money from the scheme, the total gain in his assets is 40%. Find the approximate percentage of the original value at which the bike sold.  
(A) 50% (B) 20%  
(C) 10% (D) 25%  
(E) 30%
- Q5** Geeta invested Rs ( $a + 200$ ) at a simple interest rate of 10% per annum for 3 years in bank 1, and Rs ( $a + 600$ ) at simple interest rate of 8% per annum for 2 years in bank 2. If he obtained the interest of Rs 272 more in bank 1 than bank 2, then find the average of the two given amounts.  
(A) Rs 2450 (B) Rs 2600  
(C) Rs 2700 (D) Rs 3600  
(E) None of these
- Q6** Karan has a total amount of Rs. ( $x+2000$ ) and he deposited Rs. ( $x-3000$ ) for 2 years at 5% rate of simple interest per annum and the remaining amount he invested at 10% rate of simple interest per annum for only 1 year. If at the end of both the investments he has a total amount of Rs. 11000, then find the value of  $x$ .  
(A) 5000 (B) 7000  
(C) 8000 (D) 6000  
(E) 9000
- Q7** Karan invested one-half of his savings in a mutual fund that paid simple interest for 4 years at a rate of 15% and received Rs.6000 as interest. He invested the remaining in a mutual fund that paid compound interest, interest being compounded annually, for the next 2 years at the same rate of interest and received Rs.3225 as interest. What was the value of his total savings before investing in these two mutual funds?  
(A) 15000 (B) 18000  
(C) 20000 (D) 24000  
(E) 30000



**Q8** If the simple interest earned on a sum at rate of \_\_\_\_\_ per annum after 2 years is Rs. 240, then the simple interest at the rate of 10% per annum for 2 years on the same sum will be Rs. \_\_\_\_\_. The values given in which of the following options will fill the blanks in the same order in which it is given to make the above statement true:

- I. 6%, 350
- II. 8%, 300
- III. 15%, 250

- (A) Only I
- (B) Only II
- (C) Only III
- (D) Both 1 and 2
- (E) All one two and three

**Q9** Tushar takes Rs. P from Lalit at 9% rate of interest, at same time he gives Rs. (P + Q) to Shivani at 15% rate of interest. At the end of year, net profit earned by Tushar is twice of

interest earned by Lalit. If Tushar gives (P + 2Q) to Shivani at 10% per annum then his earning from Shivani is decreased by Rs. 750. Find the value of (2P + 3Q).

- (A) 3.7 lakhs
- (B) 1.35 lakhs
- (C) 3.2 lakhs
- (D) 3.3 Lakhs
- (E) None of these

**Q10** A sum of Rs x is invested in scheme A having simple interest at the rate of R% p.a. while another sum of Rs 2x is invested in scheme B having simple interest rate at the rate of (R + 4) % p.a. The ratio of interest earned after 3 years in scheme A and interest earned after 4 years in scheme B is 1 : 4. Find the per annum interest rate in scheme B.

- (A) 22%
- (B) 18%
- (C) 12%
- (D) 24%
- (E) None of these



# Answer Key

## Level-1

Q1 (C)  
Q2 (C)  
Q3 (A)  
Q4 (C)  
Q5 (B)  
Q6 (B)  
Q7 (C)  
Q8 (C)  
Q9 (B)  
Q10 (A)

Q11 (C)  
Q12 (A)  
Q13 (C)  
Q14 (C)  
Q15 (B)  
Q16 (C)  
Q17 (C)  
Q18 (C)  
Q19 (A)  
Q20 (A)





## Level-2

Q1 (A)  
Q2 (C)  
Q3 (A)  
Q4 (C)  
Q5 (D)  
Q6 (C)  
Q7 (A)  
Q8 (A)  
Q9 (C)  
Q10 (C)

Q11 (B)  
Q12 (A)  
Q13 (A)  
Q14 (D)  
Q15 (C)  
Q16 (C)  
Q17 (A)  
Q18 (A)  
Q19 (C)  
Q20 (B)



## Level-3

Q1 (C)

Q2 (A)

Q3 (A)

Q4 (D)

Q5 (B)

Q6 (C)

Q7 (C)

Q8 (B)

Q9 (D)

Q10 (C)



# Hints & Solutions

## Level-1

**Q1 Text Solution:**

$$\text{Simple Interest} = \frac{(\text{Principal} \times \text{Rate} \times \text{Time})}{100}$$

where:

$$\text{Principal} = \text{Rs. } 20,000$$

$$\text{Rate} = R\% \text{ per annum}$$

$$\text{Time} = 5 \text{ years}$$

$$\text{Simple Interest} = \frac{(20,000 \times R \times 5)}{100} = 1000R$$

$$\Rightarrow 12000 = 1000R$$

$$\Rightarrow R = 12\%$$

**Q2 Text Solution:**

Let P = x unit

Simple interest = Rs. 3000

$$R = 12.5\%$$

$$T = 3 \text{ Years}$$

$$\text{Simple interest} = (P \times R \times T) / 100$$

$$3000 = (x \times 3 \times 12.5) / 100$$

$$\text{Principle} = \text{Rs. } 8000$$

**Hence the correct answer is "C"**

**Q3 Text Solution:**

P = Rs P, r = 12 % per annum, t = 2 years.

$$\text{Amount} = P \left[ \left( 1 + \frac{12}{100} \right)^2 \right]$$

$$\Rightarrow 62720 = P \left[ \left( \frac{28}{25} \right)^2 \right]$$

$$\Rightarrow 62720 = \frac{784P}{625}$$

$$\Rightarrow P = \text{Rs } 50000$$

**Q4 Text Solution:**

$$\text{Simple Interest} = \text{principal} \times \text{rate} \times \text{time} / 100$$

where:

$$\text{Principal} = \text{Rs. } P$$

$$\text{Rate} = 6\% \text{ per annum}$$

$$\text{Time} = 5 \text{ years}$$

$$\text{Simple Interest} = \frac{(P \times 5 \times 6)}{100} = 0.3P$$

$$\Rightarrow 9000 = 0.3P$$

$$\Rightarrow p = 30000$$

**Q5 Text Solution:**

$$\text{Simple interest} = \text{PRT} / 100$$

where:

$$\text{Principal} = \text{Rs. } P$$

$$\text{Rate} = \frac{28}{9}\% \text{ per annum}$$

$$\text{Time} = \frac{3}{7} \text{ years}$$

$$\text{Simple Interest} = \frac{(P \times \frac{28}{9} \times \frac{3}{7})}{100}$$

$$\Rightarrow 200 = 0.04P$$

$$\Rightarrow P = 5000$$

**Q6 Text Solution:**

$$\text{Amount} = P + Si$$

$$14500 = P + (P \times 15 \times 3) / 100$$

$$14500 = P + (45P) / 100$$

$$14500 = 145P / 100$$

$$1450000 = 145P$$

$$P = 10000$$

**Q7 Text Solution:**

$$\text{Simple Interest} = \frac{(\text{Principal} \times \text{Rate} \times \text{Time})}{100}$$

Where,

P = Principal Amount

R = rate of interest per annum

T = time period in years

$$8000 = \frac{(P \times 10 \times 4)}{100}$$

$$8000 = \frac{(P \times 2)}{5}$$

$$P = \frac{(8000 \times 5)}{2}$$

$$P = \text{Rs. } 20,000$$

Therefore, the principal amount borrowed by the man is Rs. 20,000.

**Q8 Text Solution:**

Solution

Let rate be r, principle amount be p and the number of years be t

After 6 years,

$$\text{Simple Interest} = 4p - p = 3p$$

$$3p = \frac{(p \times r \times 6)}{100}$$

$$r = 50$$

After t years,

$$\text{Simple Interest} = 6p - p = 5p$$

$$5p = \frac{(p \times 50 \times t)}{100}$$

$$t = 10 \text{ years}$$

**Q9 Text Solution:**

$$\text{SI for 2 years} = \frac{6000}{15000} \times 100 = 40\%$$

$$\text{Rate for 1 year} = \frac{40}{2} = 20\%$$

**Q10 Text Solution:**


Let Principle = 1 unit

Simple interest = 6 unit

Time = 12 years

Simple interest =  $\frac{P \times R \times T}{100}$

$$6 = \frac{1 \times R \times 12}{100}$$

Rate = **50%**

Hence the correct answer is "A"

**Q11 Text Solution:**

Let P = 1 unit

Simple interest = 1 unit

T = 12.5 years

Simple interest =  $\frac{P \times R \times T}{100}$

$$1 = \frac{1 \times R \times 12.5}{100}$$

Rate = **8%**

Hence the correct answer is "C"

**Q12 Text Solution:**

Let Principle = 1 unit

Simple interest = 4 units

Rate = 5%

Simple interest =  $(P \times R \times T) / 100$

$$4 = (1 \times T \times 5) / 100$$

Time = **80 years**

Hence the correct answer is "A"

**Q13 Text Solution:**

Let the principal amount for the first case is P and the principal amount for the second case is **Rs. 8000.**

According to the question,

SI of P for 2 years at 5% =  $\left(\frac{1}{2}\right) \times SI \text{ Rs}$

. 8000 for 2 years at 10% per annum

$$\frac{P \times 5 \times 2}{100} = \frac{1}{2} \times \frac{8000 \times 10 \times 2}{100}$$

P = **Rs. 8000**

Therefore, the sum placed on the first S.I. is Rs. 8000.

**Q14 Text Solution:**

Simple Interest =  $\frac{(Principal \times Rate \times Time)}{100}$

where:

Principal = **Rs. P**

Rate = **6% per annum**

Time = **9 years**

$$Amount = P + \frac{(P \times 9 \times 6)}{100}$$

$$\Rightarrow 46200 = P + 0.54P$$

$$\Rightarrow P = 30000$$

Now; Principal = **Rs 30000**

$$Simple Interest = \frac{(30000 \times 9 \times 6)}{100} = Rs 16200$$

**Q15 Text Solution:**

Simple Interest =  $\frac{(Principal \times Rate \times Time)}{100}$

where:

Principal = **Rs. 50000**

Rate =  $\frac{16}{3}\%$  per annum

Time =  $\frac{3}{4}$  years

$$Simple Interest = \frac{(50000 \times \frac{16}{3} \times \frac{3}{4})}{100} = 2000$$

$$Amount = Principal + Simple Interest = 50000 + 2000 = Rs 52000$$

**Q16 Text Solution:**

Invested in 1st year for 5 years  
=  $5000 \times 10\% \times 5 = 2500$

Invested in 2nd year for 4 years  
=  $5000 \times 10\% \times 4 = 2000$

Invested in 3rd year for 3 years  
=  $5000 \times 10\% \times 3 = 1500$

Invested in 4th year for 2 years  
=  $5000 \times 10\% \times 2 = 1000$

Invested in last year for 1 years  
=  $5000 \times 10\% = 500$

Total amount  
=  $5000 \times 5 + 2500 + 2000 + 1500 + 1000 + 500 = 32500$

**Q17 Text Solution:**

Simple Interest =  $\frac{(Principal \times Rate \times Time)}{100}$

where:

Principal = **Rs. P**

Rate =  $\frac{9}{4}\%$  per annum

Time =  $\frac{4}{3}$  years

$$Amount = P + \frac{(P \times \frac{9}{4} \times \frac{4}{3})}{100}$$

$$\Rightarrow 51500 = P + 0.03P$$

$$\Rightarrow P = 50000$$

Now; Principal = **Rs 50000**

$$Simple Interest = \frac{(50000 \times \frac{9}{4} \times \frac{4}{3})}{100} = Rs 1500$$

**Q18 Text Solution:**



Let the sum of money is  $P$  and the original rate of interest is  $r$ .

$$\text{Interest} = \frac{(P \times r \times 5)}{100} = 0.05Pr$$

If the sum had been put at a rate 2% higher, the new rate would be  $(r + 2)$ .

Interest earned after 5 years at the new rate

$$= \frac{(P \times (r+2) \times 5)}{100}$$

$$= 0.05P(r + 2)$$

According to the problem, the new interest earned is Rs. 240 more than the original interest.

$$0.05P(r + 2) - 0.05Pr = 480$$

$$0.05P(2) = 480$$

$$0.1P = 480$$

$$P = 4800$$

Therefore, the sum of money is Rs. 4800.

### Q19 Text Solution:

Let the initial sum be  $S$  and the interest rate be  $r$ .

According to the problem,  $S$  was invested at the rate  $r$  for 8 years.

$$\text{Interest earned would be, } I = \frac{S \times r \times 8}{100}$$

If the sum had been invested at a rate of  $(r + 4)\%$ , the total interest earned would be:

$$I' = \frac{S \times (r+4) \times 8}{100}$$

Given: the second investment would have earned Rs. 800 more than the first,

so:

$$I' - I = \text{Rs. } 400$$

$$\frac{S \times (r + 4) \times 8}{100} - \frac{S \times r \times 8}{100} = 400$$

$$S \times 0.08 \times 4 = 400$$

$$S = \text{Rs. } 1250$$

Therefore, the initial sum was Rs 1250.

### Q20 Text Solution:

Let Rate be  $x$  and  $y$  respectively.

$$\text{Interest difference} = 432$$

$$\Rightarrow \frac{4800 \times 3 \times x}{100} - \frac{4800 \times y \times 3}{100} = 432$$

$$\Rightarrow \frac{(14400)(x-y)}{100} = 432$$

$$\Rightarrow (x - y) = \frac{432 \times 100}{14400}$$

$$\Rightarrow x - y = 3\%$$



## Level-2

**Q1 Text Solution:**

Let's assume  $x$  is the amount invested in the scheme that gives 18% interest and  $(15000 - x)$  is the amount invested in the scheme that gives 15% interest.

According to the given information, total interest earned is 17%. So,

$$0.18x + 0.15(15000 - x) = 0.17 \times 15000$$

$$0.18x + 2250 - 0.15x = 2550$$

$$0.03x = 300$$

$$x = 10000$$

Therefore, the person invested Rs. 10000 in the scheme that gives 18% interest and Rs. 5000 in the scheme that gives 15% interest.

**Q2 Text Solution:**

$$\begin{aligned} \text{Amount person needs to} \\ &= 12000 + \frac{(12000 \times 8 \times 2)}{100} \\ &= 12000 + 1920 \\ &= \text{Rs } 13920 \end{aligned}$$

Amount he will receive from the person =

$$\begin{aligned} &12000 + \frac{(12000 \times 2 \times 10)}{100} \\ &= 12000 + 2400 \\ &= \text{Rs } 14400 \end{aligned}$$

Therefore;

$$\text{Overall gain} = 14400 - 13920 = \text{Rs } 480$$

**Q3 Text Solution:**

Let's first find the value of  $x$ .

$$SI = \frac{PRT}{100}$$

where,

SI = Simple Interest, P = Principal amount (initial investment), R = Annual interest rate (in decimal form), T = Time the money is invested for (in years)

So, for the first case:

$$SI = 2800 \times 10 \times 3/100 = \text{Rs. } 840$$

Hence, the value of  $x$  is Rs. 840.

For the second case:

$$1736 = 6200 \times 14 \times y/100$$

By solving the equation above for  $y$ , we get:

$$y = 1736/(6200 \times 14) \times 100 = 2 \text{ years}$$

To find the value of  $x/y$ :

$$x/y = 840/2 = 420$$

Therefore, the value of  $x/y$  is 420.

**Q4 Text Solution:**

$$\begin{aligned} \text{Rate} &= \frac{(\text{Simple Interest} \times 100)}{(\text{Principal} \times \text{Time})} = \frac{(8000 \times 100)}{(40000 \times 4)} \\ &= 5\% \end{aligned}$$

the rate of interest was 5% more than the original rate of 5%.

The new rate of interest would be  $5\% + 5\% = 10\%$ .

$$\begin{aligned} \text{New Simple Interest} &= \frac{(40000 \times 10 \times 4)}{100} = \text{Rs. } 16000 \end{aligned}$$

$$\begin{aligned} \text{Additional Interest} &= \text{New Simple Interest} - \text{Simple Interest} \\ &= \text{Rs. } 16000 - \text{Rs. } 8000 = \text{Rs. } 8000 \end{aligned}$$

Therefore, if the rate of interest were 5% more, the amount would have earned an additional interest of Rs. 8000.

**Q5 Text Solution:**

Suppose Principal = Rs. P, Amount = 2P, Time = 10 and Rate = R% (Suppose)

$$\Rightarrow SI = 2P - P = \text{Rs. } P$$

Now,

$$P = (P \times 10 \times R/100)$$

$$\Rightarrow R = 100/10 = 10\%$$

$\therefore$  The rate of interest = 10% per annum

**Q6 Text Solution:**

$$\text{Simple Interest} = \frac{(\text{Principal} \times \text{Rate} \times \text{Time})}{100}$$

where:

$$\text{Principal} = \text{Rs. } 20000$$

$$\text{Rate} = (x + 2)\% \text{ per annum}$$

$$\text{Time} = x \text{ years}$$

$$\text{Simple Interest} = \frac{20000(x)(x+2)}{100}$$

$$\Rightarrow 16000 = 200x(x + 2)$$

$$\Rightarrow 80 = x(x + 2)$$

$$\Rightarrow x^2 + 2x - 80 = 0$$

$$\Rightarrow x^2 + 10x - 8x - 80 = 0$$



$$\Rightarrow (x + 10)(x - 8) = 0$$

$\Rightarrow x = 8$  (as value of cannot be negative)

#### Q7 Text Solution:

Let added amount by Kristopher = P

Now according to question

$$\frac{(72000+P) \times 16 \times 3}{100} - \frac{72000 \times 14 \times 3}{100} = 5520$$

$$\frac{48P}{100} + 720 \times 6 = 5520$$

$$P = 1200 \times \frac{100}{48}$$

$$P = \text{Rs. } 2500$$

#### Q8 Text Solution:

Interest earned from scheme A =

$$\frac{1500 \times R \times 4}{100} = 60R$$

Interest earned from scheme B =

$$\frac{(1500-x) \times 2R \times 4}{100} = \frac{2R(1500-x)}{25}$$

According to Question,

$$60R = \frac{3}{4} \times \frac{2R(1500-x)}{25}$$

$$1500 - x = 1000$$

$$\Rightarrow x = 500$$

$\therefore$  The answer is 500.

#### Q9 Text Solution:

Simple interest =  $\frac{\text{Principal} \times \text{Rate} \times \text{Time}}{100}$

Interest earned from scheme X =  $\frac{3000 \times 4 \times R}{100}$

Interest earned from scheme Y =  $\frac{(3000-z) \times 4 \times 2R}{100}$

ATQ,

$$\frac{3000 \times 4 \times R}{100} = \frac{3}{4} \times \frac{2R(3000-z)}{25}$$

$$120R = \frac{3}{4} \times \frac{2R(3000-z)}{25}$$

$$3000 - z = 2000$$

$$z = 1000$$

Hence the correct answer is 1000.

#### Q10 Text Solution:

Let the rate of interest be R%.

$$SI = \frac{2000 \times 8 \times R}{100}$$

$$1280 = \frac{2000 \times 8 \times R}{100}$$

$$R = 8\%$$

When rate of interest is 4% higher than the initial condition;

New rate of interest =  $(R + 4)\% = 12\%$

$$\text{New SI} = \frac{2000 \times 12 \times 8}{100} = 1920$$

$$\text{Interest earned more} = 1920 - 1280 = 640$$

#### Q11 Text Solution:

$$\text{Simple Interest} = \frac{(\text{Principal} \times \text{Rate} \times \text{Time})}{100}$$

Given;

The principal amount is Rs.10000 and simple interest earned over 5 years is Rs.3000.

$$3000 = \frac{(10000 \times x \times 5)}{100}$$

$$x = 6\%$$

If the interest rate had been 3% more, then the new rate of interest would be  $6\% + 3\% = 9\%$ .

So, the new simple interest earned on Rs.10000 for 5 years at a rate of 9% per annum would be:

$$\text{New Simple Interest} = \frac{(10000 \times 9 \times 5)}{100} = \text{Rs. } 4500$$

#### Q12 Text Solution:

Let x be the rate of interest per year.

According to the problem, the first sum lent of Rs.10000 was given for 3 year,

$$\text{interest earned} = \frac{(10000 \times 3x)}{100} = 300x$$

After two-year, increased amount of money lent = 6000

The interest earned from this amount of money

$$\text{at the end of third year} = \frac{(6000 \times 2x)}{100} = 120x$$

After two years, the total interest earned from both loans is Rs. 2520, so we have:

$$300x + 120x = 2520$$

$$420x = 2520$$

$$x = 6$$

Therefore, after 2 years the rate of interest,  $2x = 12\%$  per annum..

#### Q13 Text Solution:

Interest after 5 years

$$= \frac{(10000 \times 12 \times 5)}{100} = \text{Rs. } 6000$$

Total amount to be paid after 5 years ;

$$= 10000 + 6000 = \text{Rs. } 16000$$

As the person is only able to pay 6.25% of the total amount, he pays  $6.25\% \text{ of Rs. } 16000 = \text{Rs. } 1000$

After paying Rs. 1000, the remaining amount of the loan is:

$$16000 - 1000 = \text{Rs. } 15000$$

Now, for the remaining amount of Rs. 15000, the person pays the interest for 1 year at the rate of



10%. So, the interest for 1 year is:

$$\frac{(15000 \times 10 \times 1)}{100} = \text{Rs. } 1500$$

Therefore, the total amount paid by the person after 6 years from taking the loan is:

$$\text{Rs. } (15000 + 1000 + 1500) = \text{Rs. } 17500$$

**Q14 Text Solution:**

Let  $x$  be the amount invested in Scheme A. Then,

amount invested in Scheme B =  $20000 - x$ .

Simple interest on Scheme A

$$= \frac{(x \times 10 \times 2)}{100} = 0.2x$$

Simple interest on Scheme B

$$= \frac{[(20000 - x) \times 12 \times 2]}{100} = 0.24(20000 - x)$$

total simple interest earned in 2 years is Rs. 4320. So,

$$0.2x + 0.24(20000 - x) = 4320$$

$$0.2x + 4800 - 0.24x = 4320$$

$$-0.04x = -480$$

$$x = 12000$$

amount invested in Scheme B at 12% p.a.

$$= 20000 - x = 20000 - 12000 = \text{Rs. } 8000.$$

**Q15 Text Solution:**

Manish invests Rs. 10000 every year till 3 years.

Interest on amount invested in 1st year which was invested for 3 years

$$= 10000 \times 5\% \times 3 = 1500$$

Interest on amount invested in 2nd year which was invested for 2 years

$$= 10000 \times 5\% \times 2 = 1000$$

Interest invested in last year which was invested for only last year =  $10000 \times 5\% = 500$

Total amount

$$= (10000 \times 3) + (1500 + 1000 + 500) = 33000$$

**Q16 Text Solution:**

Let Vishal and Vikas borrow Rs  $x$  and Rs  $y$  respectively from the bank.

Rate of interest =  $r\%$  p. a.

Amount lent to Vishnu =  $(x + y)$

Rate of interest =  $(r + 2)\%$  p.a.

Total interest earned by Vishal after paying the interest to the bank

$$= \frac{x \times 4 \times (r+2)}{100} - \frac{x \times r \times 4}{100} = \frac{8x}{100}$$

Total interest earned by Vikas after paying the interest to the bank

$$= \frac{y \times 4 \times (r+2)}{100} - \frac{y \times r \times 4}{100} = \frac{8y}{100}$$

According to the question,

$$\frac{8x}{100} - \frac{8y}{100} = 1250$$

$$x - y = 15625$$

Option '15625' is the correct answer.

**Q17 Text Solution:**

Let the original rate of interest be  $r$ .

Interest at the end of 1<sup>st</sup> year;  $I_1 = 1600 \times r$

After one year, a sum of Rs. 400 more is lent at twice the rate.

Interest earned at the end of the second year;

$$I_2 = 1600r + (400)(2r) = 1600 \times r + 800r = 2400r$$

Total interest earned after two years is Rs. 100;

$$I_1 + I_2 = 200$$

$$1600 \times r + 2400 \times r = 200$$

$$4000r = 200$$

$$r = 0.05$$

Therefore, the original rate of interest was 5%.

**Q18 Text Solution:**

Let's assume that the original sum of Rs. 10000 was lent at a rate of interest of  $x\%$  per annum.

the total amount lent after 1 year is Rs.  $(10000 + 5000) = \text{Rs. } 15000$ .

The interest earned at the end of 2 years is Rs. 1250.

Interest earned on the first loan of Rs. 10000

$$= \frac{(10000 \times x \times 2)}{100} = \text{Rs. } 200x$$

interest earned on the second loan of Rs. 5000

$$= \frac{(5000 \times x \times 1)}{100} = \text{Rs. } 50x.$$

So;

$$200x + 50x = 1250$$

$$250x = 1250$$

$$x = 5$$

Therefore, the original rate of interest was 5% per annum.

**Q19 Text Solution:**





Let  $x$  be the rate of interest per year.

According to the problem, the first loan of Rs.12000 was lent for one year,

$$\text{interest earned} = \frac{(12000 \times x)}{100} = 120x$$

After one-year, total amount of money lent

$$= 12000 + 8000 = 20000$$

The interest earned from this amount of money after one year is:

$$\frac{(20000 \times x)}{100} = 200x$$

After two years, the total interest earned from both loans is Rs. 3200, so we have:

$$120x + 200x = 3200$$

$$320x = 3200$$

$$x = 10$$

Therefore, the original rate of interest was 10% per year.

**Q20 Text Solution:**

Let he invested for his younger son Rs  $x$  lakh

$$x + \frac{x \times 10 \times 10}{100} = \frac{(24-x) \times 10 \times 6}{100} + (24 - x)$$

$$200x = 160 \times (24 - x) \Rightarrow 360x = 160 \times 24$$

$$x = 10.67$$

So,  $x = 10.67$  lakh



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## Level-3

**Q1 Text Solution:**

Let the amount of money invested in scheme X be Rs m

The amount of money invested in scheme Y will be 16500 – m

We know the formula for SI

$$SI = \frac{P \times R \times T}{100}$$

$$SI = \frac{m \times 10 \times 2}{100}$$

$$SI = 0.2m \quad \dots\dots$$

(1)

For scheme Y: -

$$SI = \frac{(16500 - m) \times 12 \times 2}{100}$$

$$SI = 3960 - 0.24m \quad \dots\dots$$

(2)

From the given condition states that the total interest is

$$0.2m + 3960 - 0.24m = 3620$$

$$3960 - 3620 = 0.24 - 0.2m$$

$$340 = 0.04m$$

$$m = \frac{340}{0.04}$$

$$m = 8500$$

Hence, the amount of money invested in the scheme

$$Y = 16500 - m$$

$$= 16500 - 8500$$

$$= 8000.$$

**Q2 Text Solution:**

The interest for the first two years at 5% per annum is:

$$\text{Interest} = \frac{(10000 \times 5 \times 2)}{100} = \text{Rs. } 1000$$

After two years, the total amount due is  
 $\text{Rs. } 10000 + \text{Rs. } 1000 = \text{Rs. } 11000.$

The farmer pays only 9.09% of this total amount, which is:

$$\text{Payment} = \frac{1}{11} \times 11000 = \text{Rs. } 1000$$

So, after 2 years, the farmer still has to pay  
 $\text{Rs. } 11000 - \text{Rs. } 1000 = \text{Rs. } 10000.$

After one more year, the farmer pays the remaining amount plus the interest accrued for that year at 20% per annum. The interest for that year is:

$$\text{Interest} = \frac{(10000 \times 20 \times 1)}{100} = \text{Rs. } 2000$$

So, the total amount the farmer has to pay after three years from taking the loan is:

$$\text{Total amount} = \text{Remaining amount} + \text{Interest} \\ = 10000 + 2000 = \text{Rs. } 12000$$

Therefore,

Total amount the farmer paid after 3 years from taking the loan is  
 $\text{Rs. } 1000 + \text{Rs. } 12000 = \text{Rs. } 13000.$

**Q3 Text Solution:**

$$\text{Interest after 4 years} \\ = \frac{(15000 \times 8 \times 4)}{100} = \text{Rs. } 4800$$

Total amount to be paid after 4 years = 15000 + 4800 = Rs. 19800

As the person is only able to pay 20% of the total amount, he pays:

$$20\% \text{ of Rs. } 19800 = \text{Rs. } 3960$$

After paying Rs. 3960, the remaining amount of the loan is:

$$19800 - 3960 = \text{Rs. } 15840$$

Now, for the remaining amount of Rs. 15840, the person pays the interest for 1 year at the rate of 30%. So, the interest for 1 year is:

$$\frac{(15840 \times 30 \times 1)}{100} = \text{Rs. } 4752$$

Therefore, the total amount paid by the person after 6 years from taking the loan is:

$$\text{Rs. } (15840 + 4752 + 3960) = \text{Rs. } 24552$$

**Q4 Text Solution:**

According to the question,

Total money with him = Rs. 250000

Simple interest for 5 years = 250000 - 100000 =  
 $150000 \times 10 \times \frac{5}{100} = \text{Rs. } 75000$

The amount he gets from scheme = 150000 + 75000 = 225000



Total gain of selling his entire asset =  $250000 \times \frac{140}{100} = \text{Rs. } 350000$

Amount he gets from assets =  $350000 - 225000 = 125000$

Required percentage =  $\frac{25000}{100000} \times 100 = 25\%$

Hence, answer is option d.

#### Q5 Text Solution:

According to the question,

$$(a + 200) \times 10 \times 3 - (a + 600) \times 8 \times 2 = 272 \times 100$$

$$30a + 6000 - 16a - 9600 = 27200$$

$$14a = 27200 + 3600$$

$$14a = 30800$$

$$a = \frac{30800}{14}$$

$$a = 2200$$

So, the amounts invested by Geeta are Rs. 2400 and Rs. 2800.

Therefore, the required average  
 $= \frac{(2400 + 2800)}{2} = \text{Rs. } 2600$

#### Q6 Text Solution:

Simple interest earned on  
 $(x - 3000)$  at 5% for 2 years =

$$\frac{(x - 3000 \times 5 \times 2)}{100} = \frac{(x - 3000)}{10}$$

interest earned on the remaining amount  
 invested at 10% for 1

$$\text{year} = (x + 2000) - (x - 3000)$$

= Rs. 5000 at 10% for 1 year

$$= \text{Rs. } 500$$

So,

total amount earned on both investments  
 $= \frac{(x - 3000)}{10} + 500.$

According to the question,

Total amount at the end of both investments is  
 Rs. 11,000. Therefore;

$$x + 2000 + \frac{(x - 3000)}{10} + 500 = 11000$$

$$x + \frac{(x - 3000)}{10} = 8500$$

$$10x + x - 3000 = 85000$$

$$11x = 88000$$

$$x = 8000$$

Therefore, the value of x is 8000.

#### Q7 Text Solution:

Let the savings invested in each of the mutual  
 funds will be Rs k.

Total savings invested  
 $= \text{Rs } (k + k) = \text{Rs } 2k$

For; Simple Interest

$$k \times 15 \times \frac{4}{100} = 6000$$

$$\Rightarrow k = 10000$$

Therefore; total savings =  $2k = \text{Rs } 20000$

#### Q8 Text Solution:

Using option, I if rate is 6% then total interest will  
 be 12% which is equal to 240 rupees

So, sum will be

$$12\% = 240$$

$$100\% = \frac{240}{12} \times 100 = 2000$$

Now if principal is 2000 so interest in two years  
 at rate of

$$S.I. = \frac{p \times r \times t}{100} = \frac{2000 \times 10 \times 2}{100} = 400$$

So, condition 1<sup>st</sup> not satisfied

Using option, II if rate is 8% then total interest  
 will be 16% which is equal to 240 rupees

So, sum will be

$$16\% = 240$$

$$100\% = \frac{240}{16} \times 100 = 1500$$

Now if sum is 1500 so interest in two years at  
 rate of 10% will be =

$$S.I. = \frac{p \times r \times t}{100} = \frac{1500 \times 10 \times 2}{100} = 300$$

So, condition 2<sup>nd</sup> is satisfied

Using option, III if rate is 15% then total interest  
 will be 30% which is equal to 240 rupees

So, sum will be

$$30\% = 240$$

$$100\% = \frac{240}{30} \times 100 = 800$$

Now if sum is 1200 so interest in two years at  
 rate of 10% will be =  $2000 \times 20\% = 400$

$$S.I. = \frac{p \times r \times t}{100} = \frac{800 \times 10 \times 2}{100} = 160$$

So, condition 3<sup>rd</sup> is not satisfied

Hence only option 2 will be satisfied is the right  
 answer.

Direct method

Let Rate = x

So, interest =  $2x\%$

Given that  $2x\% = 240$

$$x\% = 120$$



$$100\% = \frac{12000}{x}$$

Now second condition

$$\text{Interest} = \frac{12000}{x} \times 20\% = \frac{2400}{x}$$

$$\text{So, if rate } x \text{ then interest} = \frac{2400}{x}$$

Only this condition satisfied in 2<sup>nd</sup> situation

Hence only option 2 will be satisfied is the right answer

**Q9 Text Solution:**

$$\text{Interest paid by Tushar to Lalit} = 9\% \times P$$

$$\text{Interest earned by Tushar from Shivani} = 15\% \times (P + Q)$$

$$\text{Net profit earned by Tushar} = 15\% \times P + 15\% \times Q - 9\% \times P = 6\% \times P + 15\% \times Q$$

$$Q - 9\% \times P = 6\% \times P + 15\% \times Q$$

Now,

$$= 2 \times 9\% \times P = 6\% \times P + 15\% \times Q$$

$$= 12\% \times P = 15\% \times Q$$

$$= \frac{P}{Q} = \frac{5}{4} = \frac{5a}{4a}$$

Also,

$$= 15\% \times (P + Q) - 10\% \times (P + 2Q) = 750$$

$$= 5\% \times P - 5\% \times Q = 750$$

$$= 5\% \times 5a - 5\% \times 4a = 750$$

$$= 5a - 4a = 15000$$

value of  $a = 15000$

$$P = 5 \times 15000 = 75000 \text{ Rs}$$

$$Q = 4 \times 15000 = 60000 \text{ Rs}$$

$$\text{Required value} = (2 \times 75000 + 3 \times 60000) = 3.3 \text{ lakhs}$$

**Q10 Text Solution:**

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

According to the question,

$$\frac{(x \times R \times 3)}{(2x \times (R+4) \times 4)} = \frac{1}{4}$$

$$12R = 8R + 32$$

$$R = 32/4 = 8\% \text{ p.a.}$$

$$\text{Interest rate in scheme B} = 8 + 4 = 12\% \text{ p.a.}$$

Option '12%' is the correct answer.

