BOOST UP PDFS | Quantitative Aptitude | SI & CI Problems (Moderate Level Part-1)

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1. Rs. 12,000 is divided into two parts so 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 4½ 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

e. 3 : 5

2. An automobile financier claims to be lending money at simple interest, but he includes the interest every six months for calculating the principal. If he is charging an interest of 10%, the effective rate of interest becomes:

a. 10%

b. 10.25%

c. 10.5%

d. 10.75%

e. None of these

3. Abhay gave Rs 1200 on loan. Some amount he gave at 4% per annum on simple interest and remaining at 5% per annum on simple interest. After 2 years he got Rs 110 as interest. Then the amounts given at 4% and 5% per annum simple interest are respectively.

a. Rs 500, Rs 700

b. Rs 400, Rs 800

c. Rs 800, Rs 300

d. Rs 1100, Rs 1100

e. Rs 1000, Rs 1100

4. A lent Rs. 5000 to B for 2 years and Rs. 3000 to C for 4 years on simple interest at the same rate of interest and received Rs. 2200 in all from both as interest. The rate of interest per annum is

a. 7%

b. 5%

c. 57/8%

d. 10%

e. 15%

5. A lent Rs. 5000 to B for 2 years and Rs. 3000 to C for 4 years on simple interest at the same rate of interest and received Rs. 2200 in all from both of them as interest. The rate of interest per annum is:

a. 5%

b. 7%

c. 7(1/8)%

d. 10%

e. none of these

6. If Rs. 12000 is lent at 10% p.a. (compound interest) compounded half yearly for one year. What is the equivalent simple rate of interest for 1 year for same interest?

a. 10.25% p.a

b. 9.24% p.a

c. 6.26% p.a

d. 8.42% p.a

e. 12.25% p.a

7. Gopal lent Rs. 5000 into two parts to two men, one at 4% and another at 5%. After 1 years he gains the interest at 4.2% per annum on the total money. Find the money lent on 4%.

a. Rs. 5000

b. Rs. 4000

c. Rs. 5500

d. Rs. 4500

e. Rs. 3500

8. A gave some amount at simple rate of interest of 10% p.a to B for 3 years and B gave this amount to C at the rate of 20% p.a for 3 years. If the income of B was Rs. 1560 after 3 years, what amount A had given to B?

a. Rs. 6200

b. Rs. 5400

c. Rs. 5200

d. Rs. 5600

e. Rs. 4800

9.The simple interest charged on an amount of Rs. 22,500 at the end of four years is Rs. 10,800. What will be the compound interest on the same amount at the same rate at the end of two years?

a. Rs. 14,908

b. Rs. 5,724

c. Rs. 26,234

d. Rs. 8,568

e. Rs. 9,656

10.A sum of Rs. 91,000 is borrowed at 20% per annum compounded annually for two years. If it were borrowed at the rate of 100/7% per annum simple interest for four years then, find the difference between C.I and S.I

a. Rs. 16,910

b. Rs. 12,800

c. Rs. 12,960

d. Rs. 11,960

e. None of these

11.The rates of simple interest in two banks x and y are in the ratio of 10 : 8. Rajini wants to deposit her total savings in two banks in such a way that she receives equal half-yearly interest from both. She should deposit the savings in banks x and y in the ratio of

a. 4 : 5

b. 3 : 5

c. 5 : 4

d. 2 : 1

e. None of these

12.SBI lent Rs. 10,000 to Deepak @7% SI for 10 years. Meanwhile, the government implemented a scheme due to which interest rate reduced by 2%. By this Deepak paid Rs.16,000 in total. Then after how many years after Deepak took the loan, the government introduced the scheme?

a. 3 Years

b. 4 Years

c. 5 years

d. 6 years

e. Cannot be determined

13.A certain sum of money amounts to Rs. 1008 in 2 years and to Rs. 1164 in 7/2 years. Find the sum and the rate of interest.

a. 10%

b. 11%

c. 12%

d. 13%

e. None of these

14.Amit lent a part of Rs. 15900 to Raju at 6% SI. Rest to Anil at 5% SI. After 4 years he got an amount of Rs 19376 in total. Then what is the amount paid by Anil in total?

a. Rs. 9176

b. Rs. 9847

c. Rs. 10200

d. Rs. 11200

e. None

15.A sum of Rs.1550 was lent partly at 5% and partly at 8% p.a. simple interest. The total interest recieved after 3 years was Rs. 300. The ratio of the money lent at 5% to that lent at 8% is :

a. 5 : 8

b. 8 : 5

c. 16 : 15

d. 31 : 6

e. None of these

16.A man invests Rs. 124000 for 9 years at 5% SI. Income tax at the rate of 19% is deducted from interest earned at the end of every year. Find the amount at the end of the 9th year?

a. Rs. 169198

b. RS. 169918

c. Rs. 196918

d. Rs. 199698

e. None

17.Out of certain sum, 1/3rd is interested at 3%, 1/6th at 6% and rest at 8%. If the simple interest for 2 years from all these investments amounts to Rs. 600. Find the original sum.

a. 4000

b. 15000

c.5000

d. 4975

e. None of these

18.Two equal some of money were invested at an annual rate of 10%, One sum at simple interest and other at compound interest, If the difference between the interest after 2 years was Rs.100, What were the sum invested ?

a. 25,000
b. 100000
c. 20,000
d. 10,000
e. 50,000

19.A man invests Rs.8000 for 5 years at 5% p.a. Simple Interest interest reckoned yearly. Income tax at the rate of 20% on the interest earned is deducted at the end of each year. Find the amount at the end of the fifth year.

a. Rs.10,500
b. Rs.10,500
c. Rs.9,600
d. Rs.10,000
e. None of these

20.If a sum of money amounts to ₹ 12900 and ₹ 14250 at the end of 4th year and 5th year respectively a certain rate of simple interest, then the rate of interest is

a. 10%
b. 12%
c. 18%
d. 20%
e. None of these

21.Vivek invests Rs 15000 as fixed deposit at a bank at the rate of 10% per annum SI. But due to some pressing needs he has to withdraw the entire money after 5 years, for which the bank allowed him a lower rate of interest. If he gets Rs 8250 less than what he would have got at the end of 10 years, the rate of interest allowed by the bank is

a. 8%
b. 8.5%
c. 9%
d. 9.5%
e. 10%

22.Out of a sum of Rs 850, a part was lent at 6% SI and the other at 12% SI. If the interest on the first part after 2 years is equal to the interest on the second part after 4 years, then the second sum is

a. Rs350
b. Rs280
c. Rs170
d. Rs220
e. None

23.Two persons P and Q borrowed Rs.40,000/- and Rs.60,000/- respectively from R at different rates of simple interest. The interest payable by P at the end of the first four years and that payable by Q at the end of the first three years is the same. If the total interest payable by P and Q for one year is Rs.8,400/- then at what rate did Q borrow the money from R?

a. 8

b. 10
c. 12
d. 9
e. None

24.The rate of interest on a sum of money is 4% per annum for the first 2 years , 6% per annum for the period next 4 years, 8% per annum for the period beyond 6 years.If the simple interest accrued by the sum for a total period of 9 years is Rs. 1680 ,what is the sum ?

a. Rs.3000
b. Rs.5000
c. Rs.4700
d. Rs.5500
e. Rs.7580

25.Jenny invested an amount of Rs. 13,900 divided in two different schemes A and B at the simple interest rate of 14% p.a. and 11% p.a. respectively. If the total amount of simple interest earned in 2 years be Rs. 3508, what was the amount invested in Scheme B?

a. Rs. 5500
b. Rs. 5000
c. Rs. 6400
d. Rs. 6000
e. Rs. 7500

26.A man took some loan from a bank at the rate of 8% C.I. per annum and he repaid the whole amount of the loan by paying Rs. 50000 and Rs.62640 at the end of first year and second year, respectively. The sum of the loan (in Rs.) was

a. 100000
b. 112640
c. 150000
d. 50000
e. None of these

27. Sanjay purchased a hotel worth rupees 10 lakhs and Anita purchased a car worth Rs. 16 lakh. The value of hotel every year increase by 20% of the previous value and the value of car every depreciates by 25%. What is the difference between the price of hotel and car after 3 years?

a. 10,53,000
b. 10,63,000
c. 11,53,000
d. 10,43,000
e. None of these

28. A bank offers 5% compound interest calculated on half-yearly basis. A customer deposits Rs. 1600 each on 1stJanuary and 1st July of a year. At the end of the year, the amount he would have gained by way of interest is

a. 120
b. 121
c. 122
d. 123
e. None of these

29.The difference between simple and compound interests compounded annually on a certain sum of money for 2 years at 4% per annum is Re. 1. The sum (in Rs.) is

a. 625

b. 630

c. 640

d. 650

e. None of these

30.There is 60% increase in an amount in 6 years at simple interest. What will be the compound interest of Rs. 12,000 after 3 years at the same rate?

a. Rs. 4620

b. Rs. 3972

c. Rs. 2160

d. Rs. 5646

e. None of these

31.A has lent some money to B at 6% p.a. and C at 10% at the end of the year he has gain the over all interest at 8% p.a. in what ratio has he lent the money to A and B?

a. 1 : 2

b. 2 : 1

c. 1 : 1

d. 2 : 3

e. None of these

32. The compound interest on a sum of money for 2 years is Rs. 832 and the simple interest on the same sum for the same period is Rs. 800. The difference between the compound interest and the simple interest for 3 years will be:

a. Rs. 48

b. Rs. 66.56

c. Rs. 98.56

d. Rs. 106.56

e. Rs. 96

33.Shantanu borrowed Rs. 2.5 lakh from a bank to purchase one car. If the rate of interest be 6% per annum compounded annually, what payment he will have to make after 2 years 6 months?

a. Rs. 189,325

b. Rs. 186,325

c. Rs. 389,325

d. Rs. 289,325

e. None of these

34.A man borrows Rs. 12,500 at 20% compound interest. At the end of every year he pays Rs. 2000 as part of repayment. How much does he still owe after three such instalments?

a. Rs, 12,000

b. Rs, 12864

c. Rs, 15,600

d. Rs. 14320

e. Rs. 12320

35.A sum of Rs. 9960 was borrowed at 15/2% per annum compound interest and paid back in two years in two equal annual installments. What was the amount of each installment?

a. Rs. 5,345
b. Rs. 5547
c. Rs. 5847
d. Rs. 5397
e. none of these

36.A person took a loan of Rs. 6000 for 3 years, at 5% per annum compound interest. He repaid Rs. 2100 in each of the first 2 years. The amount he should pay at the end of 3rd to clear all his debts is:

a. Rs. 2425.50
b. Rs. 2552.50
c. Rs. 2635.50
d. Rs. 2745.50
e. None of these

37.A lent an amount of Rs. 1100 to B. This is to be paid back to A in two instalments. If the rate of interest, which A charges to B, be 20% compounded annually, then what is the value of each instalment ?

a. Rs. 730
b. Rs. 780
c. Rs. 750
d. Rs. 720
e. None of these

38.The simple interest accrued on an amount of Rs. 18,500 at the end of three years is Rs. 7770. What would be the compound interest accrued on the same amount at the same rate in the same period?

a. Rs. 8908.56
b. Rs. 8218.27
c. Rs. 7754.82
d. Rs. 9537.47
e. None of these

39.Ragnal, Rollo and Vik start a business by investing Rs 70,000 that earns them a profit of Rs 42,000 at the end of the year. Ragnar invests his share in the profit in a scheme that gives him 10% interest compounded annually and Rollo invests his share in a scheme that gives him 20% interest compounded annually. Ragnar gets Rs 2,520 as interest at the end of 2 years and Rollo gets an interest of Rs 4,200 at the end of one year. Find Vik's investment in the business.

a. Rs 1,60,000
b. Rs 15,000
c. Rs 17,520
d. Cannot be determined
e. none of these

40.Rs. 12200 was partly invested in Scheme A at 10% p.a. compound interest (compounded annually) for 2 years and partly in Scheme B at 10% p.a. simple interest for 4 years. Both the schemes give equal interests. How much was invested in Scheme A ?

a. Rs. 7500
b. Rs. 9000
c. Rs. 8000
d. Rs. 6050
e. Rs. 10000

41.A man gave 50% of his savings of Rs. 168200 to his wife and divided the remaining sum among his sons

Abid and Bisth of 15 and 13 years of age respectively. He divided it in such away that each of his sons when they attain the age of 18 years, would receive the same amount of 5% compound interest per annum. The share of Bisth was:

a. Rs. 42050
b. Rs. 40000
c. Rs. 45000
d. Rs. 45500
e. None of these

42.Hari took an educational loan from a nationalized bank for his 2 years course of MBA. He took the loan of Rs.5 lakh such that he would be charged at 7% p.a. at CI during his course and at 9% CI after the completion of the course. He returned half of the amount which he had to be paid on the completion of his studies and remaining after 2 years. What is the total amount returned by Hari?

a. Rs. 626255
b. Rs. 626277
c. Rs. 616266
d. Rs. 626288
e. None of these

43.Reet invested an amount of Rs A for 2 years at 12% compound interest and received some amount of interest. Sonali invested Rs (A + 1500) for 3 years at 8% simple interest and received same amount of interest as Reet received. Find the amount that is invested by Reet.

a. Rs 20000
b. Rs 25000
c. Rs 30000
d. Rs 27500
e. Rs 22500

44.Anjana lent Rs. 7000 to Sunil for 3 years and Rs. 5000 to Saurabh for 5 years on simple interest at the same rate of interest and she received Rs. 5520 from both of them as interest. Find the rate of interest.

a. 10%
b. 21%
c. 12%
d. 15%
e. None of these

45.Lata had ₹ 40000. She invested some amount in scheme A at CI at 15% and the remaining amount in scheme B at SI at 10%. If she got the same interest from both the investments at the end of one year. How much in ₹ did she invest in scheme B?

a. ₹ 34000
b. ₹ 24000
c. ₹ 16000
d. ₹ 18000
e. ₹ 20000

46.Sachin had ₹ 23,000. He invested some amount in scheme A at SI at 20% and the remaining amount in scheme B at CI at 10%. If Sahil got the same amount from both of them at the end of one year, how much (in ₹) did he invest in scheme B ?

a. 10000
b. 11000
c. 11500
d. 12000
e. 13000

47.Sanjay invested Rs. 48000 in two different parts one at 10% CI (Compounded half yearly) and another one at 15% SI. At the end of the year he received total interest Rs. 5490, then find the amount invested in SI?

a. Rs. 18000
b. Rs. 12000
c. Rs. 22000
d. Rs. 25000
e. None of these

48.Saaru invested Rs. 25000 in CI at the rate of x% per annum and Rs. 32000 is invested in SI at (x + 3) % rate of interest for one year if she received the total amount at the end of the year is Rs. 62520, then find the rate of interest per annum for Simple interest?

a. 7 %
b. 9 %
c. 13 %
d. 11 %
e. None of these

49.Tanuja invested Rs. X in a scheme 1 offering simple interest at 10% pa for two years. She invested the whole amount she received from scheme 1 in another scheme 2 offering simple interest at 12% pa for five years. If the difference between the interest earned from scheme 1 and scheme 2 was Rs.1300, what is the value of X.

a. 2000
b. 2590
c. 3000
d. 2800
e. 2500

50.Divide Rs. 11000 into two parts such that the simple interest on the first part for years at 10% pa is equal to the simple interest on the second part for 4 years at 4% pa.

a. Rs.5000 and Rs.6000
b. Rs.6500 and Rs.4500
c. Rs.6000 and Rs.5000
d. Rs.7000 and Rs.4500
e. None of these.

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Answer Key with Detailed Solution

1. A

Let Rs. P be lent at 12% then Rs. (12,000–P) is lent at 16%, then

$\therefore \frac{P\times3\times12}{100} = \frac{(12000-P)\times9\times16}{200}$

$\Rightarrow \frac{P}{12000-P} = \frac{9\times16\times100}{3\times12\times200} = \frac{2}{1} = 2:1$

2. B

Let the sum be Rs. 100. Then,

S.I. for first 6 months = Rs. $\left(\frac{100 \times 10 \times 1}{100 \times 2}\right)$ = Rs. 5

S.I. for last 6 months = Rs. $\left(\frac{105 \times 10 \times 1}{100 \times 2}\right)$ = Rs. 5.25

So, amount at the end of 1 year = Rs. (100 + 5 + 5.25) = Rs. 110.25

∴ Effective rate = (110.25 - 100) = 10.25%

3. A

$$\frac{x \times 4 \times 2}{100} + \frac{(1200 - x) \times 5 \times 2}{100} = 110$$

$$8x + 12000 - 10x = 11000$$

$$2x = 1000$$

$$x = 500$$

Hence, Money lent at 4% is Rs 500

And lent at 5% is Rs 700

4. D

Sol. $\frac{5000\times r\times2}{100} + \frac{3000\times r\times4}{100} = 2200$

$r = 10\%$

5. D

Let the rate be R% p.a.

Then, $\left(\frac{5000 \times R \times 2}{100}\right) + \left(\frac{3000 \times R \times 4}{100}\right) = 2200.$

$\Rightarrow 100R + 120R = 2200$

$\Rightarrow R = \left(\frac{2200}{220}\right) = 10.$

$\therefore$ Rate = 10%.

6. A

Sol. When calculated on C.I Amount = $12000\left(1+\frac{5}{100}\right)^2$

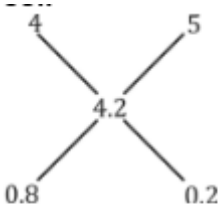
= 13230

CI = 13230 − 12000 = 1230

When SI = 1230

Equivalent rate of simple interest = $\frac{1230\times100}{12000} = 10.25\%$

7. B



= 4 : 1

Money lent on 4% = $\frac{4}{5} \times 5000 = 4000$

8. C

Let A gave Rs. P to B

$\therefore$ S.I. given by C – S.I. given by B = Income of B

$\Rightarrow \frac{P \times 20 \times 3}{100} - \frac{P \times 10 \times 3}{100} = 1560$

$\Rightarrow P = Rs.\,5200$

9. B

Sol. Rate = $\frac{10800\times100}{22500\times4} = 12\%$

$\therefore$ CI = $22500\left[\left(1+\frac{12}{100}\right)^2 - 1\right]$

$= 22500\left(\frac{28^2}{25^2} - 1\right)$

$= Rs.\,5724$

10. D

Sol. C.I. = $91000\left[\left(1+\frac{20}{100}\right)^2 - 1\right]$

$= 91000\left(\frac{36}{25} - 1\right)$

= 91000 × 11/25

= 40,040

And, S.I. = $\frac{91000\times100\times4}{700}$

= 52,000

$\therefore$ Required difference = 52,000 – 40,040 = Rs. 11,960

11. A

Let the savings be P and Q and rates of SI be 10x and 8x, respectively.

Then, $P \times 10x \times \frac{1}{2} \times \frac{1}{100} = Q \times 8x \times \frac{1}{2} \times \frac{1}{100}$

10P = 80

$\therefore \frac{P}{Q} = \frac{8}{10} = \frac{4}{5}$

$\therefore$ P : Q = 4 : 5.

12. C

6000 = 10000(7*x+5*(10-x))/100

x = 5

13. D

S.I. for 1 = S.I. for 3 − S.I. for 2 yrs = ₹(1164 – 1008) = ₹ 156.

S.I. for 1 yrs = ₹$(156 \times \frac{2}{3})$ = ₹ 208.

S.I. for 2 yrs = ₹$(156 \times \frac{2}{3} \times 2)$ = ₹ 208.

So, principal = (Amount of 2 yrs – S.I. of 2 yrs) = ₹(1008 – 208) = Rs. 800.

Now P = 800, T = 2 yrs and S.I. = 208.

So, Rate = $(\frac{100 \times 208}{800 \times 2})\%$ = 13%.

14. C

3476 = x*6*4/100 + (15900-x)*5*4/100

x =7400

Anil = 8500+8500*4*5/100 = 10200

15. C

Let the sum lent at 5% be Rs. x and that let at 8% be Rs. (1550 – x). Then

$(\frac{x \times 5 \times 3}{100}) + [\frac{(1500 - x) \times 8 \times 3}{100}] = 300.$

15x – 24x + (1550 × 24) ⇒ 30000

⇒ 9x = 7200 ⇒ x = 800

ratio= 800 / 750 = 16 : 15

16. A

for one year = 124000*5/100 = 6200

income tax = 6200*81/100 = 5022

for 9 years = 45198

Amount = 124000+45198 = 169198

17. C

Rest Part = $1 - \frac{1}{3} - \frac{1}{6} = 1 - \frac{2+1}{6} = 1 - \frac{1}{2} = \frac{1}{2}$.

let the sum be x.

$600 = \frac{(x/3) \times (3 \times 2)}{100} + \frac{(x/6) \times 6 \times 2}{100} + \frac{(x/2) \times 8 \times 2}{100}$

$600 = \frac{2x + 2x + 8x}{100} = \frac{12x}{100} = 600; x = 5000.$

18. D

Assume X =100

SI = 120

CI = 121

100 mean difference 1

200 mean difference 2

Hence 10000 mean difference 100

19. C

5% is the rate of interest. 20% deducted mean rate of Interest 4%

SI = 8000*4*5/100=1600

The amount at the end of 5 years = 8000 + 1600 = 9600

20. C

S.I. for 1 year = S.I. for 5 years – S.I. for 4 years = 14250 – 12900 = ₹ 1350

therefore, S.I. for 4 years = 1350 × 4 = ₹ 5400

∴ Principal = Amount of 4 years – S.I. of 4 years = 12900 – 5400 = ₹ 7500

⇒ Rate of interest = $\frac{\text{S.I.} \times 100}{\text{P} \times \text{T}} = \frac{5400 \times 100}{7500 \times 4}$ = 18% p.a.

21. C

P=15000, T1=10 years, T2=5 years, R1=10%, R2=?

[(15000*10*10)/100 – (15000*R2*5)/100] = 8250

15000 – 750R2 = 8250

R2 = 9%

22. C

Let the first part be x then second part be 850-x.

(x*6*2)/100 = [(850-x)*12*4]/100

x= 850*4 -4x

5x=850*4

x=680

Then second part 850-680=Rs 170.

23. B

40000*4*R1/100=60000*3*R2/100

R1=9/8R2

1yr interest 40000*1*r1/100+60000*1*R2/100=8400

4R2+6R2=84

Then substitute 4(9/8R2)+6R2=84==> R2=8

24. A

SI at the rate of 4% for 2 years ,

=(P* 4*2)/100 = 8P/100

SI at the rate of 6% for 4 years ,

(P*6*4)/100 = 24P/100

SI for the next 3 years

SI = (P*8*3)/100 = 24P/100

Total SI = 8P/100 + 24P/100 + 24P/100

=>P = (1680*100)/56 = 3000

25. E

Let the sum invested in Scheme A be Rs. x and that in Scheme B be Rs. (13900 – x).

[xx14x2]/100 + [(13900 – x)x11x2]/100 = 3508

=>28x – 22x = 350800 – (13900 x 22)

=> 6x = 45000 x = 7500

26. A

It can be solved by two methods, either by basic which will consume time or by options.

Let the sum be 100000

After 1 year of CI of 8% rate

Amount will be = 100000*108/100 = 108000

And he paid 50000 at the end of first year

Amount left for second year = 108000 – 50000 = 58000

After second year amount will be = 58000*108/100 = 62640

Which he paid in second installment.

27. A

Amount of the hotel after 3 years $=10\text{lak}\left(1+\frac{20}{100}\right)^3$.

$= 10 \text{ lakh } \left(\frac{6}{5}\right)^3 = 10{,}00{,}000 \times \frac{216}{125}$

$\Rightarrow 1728000.$

Amount of the car after 3 years $=16 \text{ lakh } \left(1-\frac{25}{100}\right)^3$.

$= 16 \text{ lakh } \left(\frac{3}{4}\right)^3$

$= 16,00,000 \times \frac{27}{64}$

= 6,75,000.

Difference = 17,28,000 - 6,75,000 = 10,53,000.

28. B

$$\text{Amount} = \text{Rs.}\left[1600 \times \left(1+\frac{5}{2\times 100}\right)^2 + 1600 \times \left(1+\frac{5}{2\times 100}\right)\right]$$

$$= \text{Rs.}\left[1600 \times \frac{41}{40} \times \frac{41}{40} + 1600 \times \frac{41}{40}\right]$$

$$= \text{Rs.}\left[1600 \times \frac{41}{40}\left(\frac{41}{40}+1\right)\right]$$

$$= \text{Rs.}\left[\frac{1600 \times 41 \times 81}{40 \times 40}\right]$$

= Rs. 3321.

C.I. = Rs. (3321 - 3200) = Rs. 121

29. A

Let the sum be Rs. x

$$\text{C.I.} = \left[x\left(1+\frac{4}{100}\right)^2 - x\right] = \left(\frac{676}{625}x - x\right) = \frac{51}{625}x.$$

$$\text{S.I.} = \left(\frac{x \times 4 \times 2}{100}\right) = \frac{2x}{25}.$$

$$\therefore \frac{51x}{625} - \frac{2x}{25} = 1$$

X = Rs. 625

30. B

Let P = Rs. 100. Then, S.I. Rs. 60 and T = 6 years.

R = (100 X 60)/ (10 X 6) = 10%

Now, P = Rs. 12000. T = 3 years and R = 10% p.a.

$$\text{C.I.} = \text{Rs.}\left[12000 \times \left\{\left(1+\frac{10}{100}\right)^3 - 1\right\}\right]$$

$$= \text{Rs.}\left(12000 \times \frac{331}{1000}\right)$$

= Rs.3972

31. C

6 1 0

↘ ↙

8

↙ ↘

2 2

the ratio is- 2 : 2 = 1:1.

32. C

Time = 2 years

CI = Rs. 832 ⇒ SI = Rs. 800

$\frac{PR^2}{100^2}$ = 832-800 = 32 .....(i)

$\frac{2PR}{100}$ = 800 .....(ii)

Dividing (i) by (ii)

R(Rate) = $\frac{32}{400} \times 100 = 8\%$

Principal = $\frac{800}{16} \times 100$ = Rs. 5000

Difference between CI and SI for 3 years = $\frac{PR^2(300+R)}{100^3} = 5000 \times \frac{1.9712}{100}$ = Rs 98.56

33. D

CI for 2 years 6 months at the rate of 6, applying the net% effect for first 2 years

$= 6 + 6 + \frac{6 \times 6}{100} = 12.36\%$

Rate of interest for 6 months = $\frac{6}{12} \times 6 = 3\%$

For next 6 months = $12.36 + 3 + \frac{12.36 \times 3}{100} = 15.36 + 0.37\% = 15.73\%$

Here, we can see that in 2 years 6 months the given compound rate of interest is approximate 15.73%.

Now, 115.73% of 250000 = $\frac{115.73 \times 250000}{100}$ = 289,325.

34. D

Principal = Rs. 12,500

Rate = 20% compounded per annum Now, Amount after first year = $12500 \times \frac{120}{100}$

= Rs. 15000

Principal for second year = 15000 – 2000

Rs. 13000

Amount after second year = $13000 \times \frac{120}{100}$

= Rs. 15600

Principal for third year = 15600 – 2000

Rs. 13600

Amount after third year = $13600 \times \frac{120}{100} = 16320$

Remaining amount = 16320 – 2000 = Rs. 14320

35. B

Let the each instalment be x.

$$\frac{x}{(1+\frac{15}{2\times 100})} + \frac{X}{(1+\frac{15}{2\times 100})^2} = 9960$$

$$\frac{x}{(1+\frac{3}{40})} + \frac{x}{(1+\frac{3}{40})^2} = 9960$$

$$\Rightarrow \frac{40x}{43} + \frac{1600x}{1849} = 9960$$

$$\Rightarrow \frac{1720x + 1600x}{1849} = 9960$$

$\Rightarrow$ 3320 x = 9960 × 1849 $\Rightarrow$ x = Rs. 5547

36. A

Amount for first year $=6000 \times \left(\frac{105}{100}\right)$

= Rs. 6300

Repaid = Rs. 2100, Rest amount =6300 – 2100 = 4200

Amount for second year

$= 4200 \times \left(\frac{105}{100}\right)$ = Rs. 4410

Repaid = Rs. 2100, Rest amount = 4410–2100= Rs. 2310

Amount for third year = $2310 \times \left(\frac{105}{100}\right)$

= 2425.50

37. D

Let x = equal instalment at the end of each year

Now 1st year,

P = Rs. 1100

Interest at the end of 1st year = $\frac{1100 \times 20 \times 1}{100}$ = Rs. 220

Now, at the beginning of 2nd year,

P = Rs. (1100 + 220 – x) = Rs. (1320 – x)

Interest at the end of 2nd year

$= \frac{(1320 - x) \times 20 \times 1}{100} = 264 - \frac{x}{5}$

Now amount remaining after 2 years

$= (1320 - x) + (264 - \frac{x}{5}) - x = 0$

$\Rightarrow 2x + \frac{x}{5} = 1320 + 264$

$\Rightarrow \frac{11x}{5} = 1584$

$\Rightarrow X = 720$

38. A

We know that

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

$= \frac{7770 \times 100}{18500 \times 3} = 14\%$ per annum

We know the formula for compound interest -

$\Rightarrow \text{CI} = [P\{(1 + \frac{r}{100})^{t} - 1\}]$

Where,

CI = Compound interest

P = Principal

R = Rate of interest

T = Time period

$= 18500[(1 + \frac{14}{100})^{3} - 1] = 18500\ [(1.14)^3 - 1]$

$\Rightarrow 18500 \times 0.481544 = \text{Rs } 8908.56$

39. B

Let ragnar's share of profit = Rs 100
Interest in 2 years at 10% = 21 Rs
21 → 2520
100 → 12000 Rs
Let Rollo's share of profit = Rs 100
Interest in 1 year = 20 Rs
20 → 4200
100 → 21000 Rs
Share of Vik in profit = 42000 – (21000 + 12000) = 9000
Share in investment $= \frac{9000}{42000} \times 70000 = 15000$ Rs

40. C

Let Amount invested in Scheme A = x Rs.
Amount invested in Scheme B= $(12200 - x)$

$$\therefore x\left[\left(1+\frac{10}{100}\right)^2 - 1\right] = \frac{(12200-x)\times 10\times 4}{100}$$

$$21x = 488000 - 40x$$

$$61x = 488000$$

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

41. B

total share of Abid and Bisth = 84100 Rs
Let share of Abid = x
Share of Bisth = 84100 – x

$$x \times \left(1+\frac{5}{100}\right)^3 = (84100 - x)\left(1+\frac{5}{100}\right)^5$$

x = 44100
Share of Bisth = 84100 – 44100 = Rs. 40000

42. D

5,00,000 * $(1.07)^2$ = 572450

Returned amount = 286225

After two years = 286225 * $(1.09)^2$ = 340063

Total amount = 286225 + 340063 = 626288

43. B

According to the question,

$$A\left(1+\frac{12}{10}\right)^2 - A = (A + 1500) \times 8\% \times 3$$

$$A \times \frac{11}{10} \times \frac{11}{10} - A = A \times \frac{24}{10} + 360$$

$$A \times \frac{1254}{1000} - A - A \times \frac{24}{10} = 360$$

$$12544A - 10000A - 2400A = 360 \times 10000$$

$$144A = 3600000$$

$$A = 25000$$

Amount invested by Reet = Rs 25000

44. C

Let the rate of interest = x%

According to the question,

$$7000 \times 3 \times x\% + 5000 \times 5 \times x\% = 5520$$

$$210x + 250x = 5520$$

$$460x = 5520$$

$$x = 12\%$$

Rate of interest = 12%

45. B

Let the amount invested in Scheme A is ₹ x.

Then, the amount invested in Scheme B therefore will be ₹ (40000 – x)

We know that for the 1st year both Simple Interest and Compound Interest on a sum remains the same. Now, according to the question,

⇒ 15% of x = 10% of (40000 – x)

⇒ 15x = 400000 – 10x

⇒ 25x = 400000

⇒ x = 16000

Amount invested in scheme B = 40000 – 16000 = 24000.

46. D

Let the amount invested in scheme B is ₹ x.

∴ Amount invested in scheme A be ₹ (23000 – x).

According to the question,

$$(23000 - x) + \frac{(23000 - x) \times 20 \times 1}{100} = x + \left(1 + \frac{10}{10}\right)^{1} - x$$

$$\Rightarrow (23000 - x) \times \frac{6}{5} = \frac{11}{10}x$$

$$\Rightarrow 11x = 276000 - 12x$$

$$\Rightarrow 23x = 276000$$

$$\Rightarrow x = 12000$$

47. B

Let us take one part be x and another one be 48000-x

According to the question,

X[(1 + 10/200)2 – 1) + [(48000 – x)*15*1]/100 = 5490

X[(210/200)2 – 1)] + 7200 – (15x/100) = 5490

(41x/400) + 7200 – (15x/100) = 5490

(41x/400) – (15x/100) = 5490 – 7200

-19x/400 = -1710

X = 1710*(400/19) = 36000

The amount invested in S.I = 48000 – x = 48000 – 36000 = Rs. 12000

48. D

According to the question,

25000*[(100 + x)/100] + [(32000*(x + 3))/100] + 32000 = 62520

25000 + 250x + 320x + 960 = 62520 – 32000

570x = 30520 – 25960

570x = 4560

X = 8

Rate of Interest for S.I = x + 3 = 11 %

49. E

$$\text{Required difference} = \left(X + \frac{X*10*2}{100}\right)* \frac{12*5}{100} - \frac{X*10*2}{100}$$

$$\frac{100X + 20X}{100} * \frac{60}{100} - \frac{20X}{100} = 1300$$

$$X = 2500$$

50. C

Required ratio=S1:S2

S1 = 11000*6/11 = Rs.6000

And S2 = 11000*5/11 = Rs.5000