

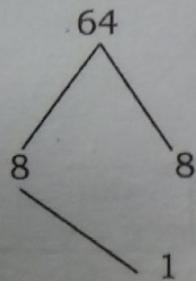
20.2; Simple interest =

$$\frac{12\frac{1}{2} \times 2}{2} \times 510 = ₹ 480$$

$$100 \left[\left(1 + \frac{12\frac{1}{2}}{100} \right)^2 - 1 \right] \times 510 = ₹ 480$$

20.2; Paramount concept -1

$$12\frac{1}{2} \% = \frac{1}{8}$$



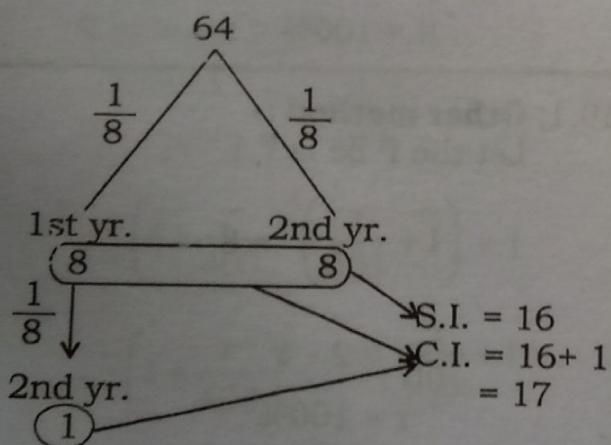
$$17 = C.I. = ₹ 510$$

$$\therefore S.I. = 16 = ₹ 480$$

20.2; Paramount concept -2

$$R = 12.5\% = \frac{1}{(8)}$$

(denominator)^t is taken as P
(8)^t → (8)² is taken as P = 64



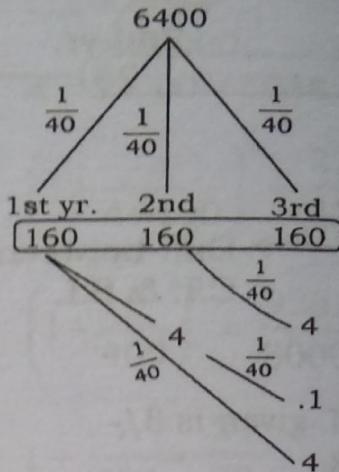
If 17 (C.I.) → 510

$$\text{then } 16 (\text{S.I.}) \rightarrow \frac{16 \times 510}{17} = 480/-$$

21.2; Paramount concept -2

$$R = 5\% = \frac{5}{100} = \frac{1}{20} \text{ Rate is halved}$$

$$= \frac{1}{40} \cdot \text{Time doubles} = 3 \text{ yrs.}$$



$$160 + 160 + 160 + 4 + 4 + 4 + 0.1$$

$$480 + 12 + .10 = 492.10$$

$$A = P + C.I.$$

$$= 6400 + 492.10 = 6892.10$$

$$21.2; \text{ Amount} = 6400 \left(1 + \frac{2.5}{100} \right)^3$$

$$= 6400 \left(\frac{41}{40} \right)^3 = \frac{6400 \times 41 \times 41 \times 41}{40 \times 40 \times 40}$$

$$= ₹ 6892.1$$

22.1; Paramount concept -1

$$\text{Rate will be } \frac{4}{4} = 1\%$$

Time = 3 yrs.

Compound interest rate = 3.0301%

∴ Interest = ₹ 303.01

22.1; Paramount concept -2

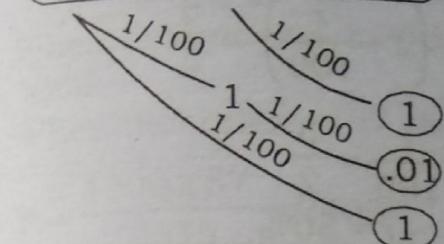
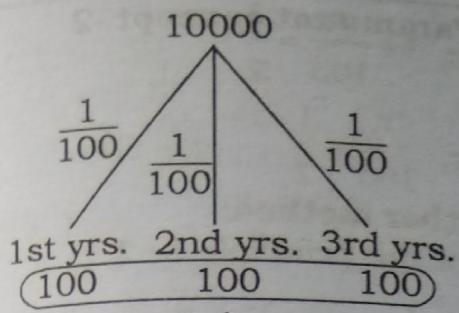
When interest is compounded quarterly then

Rate is divided by 4

Time is multiplied by 4

$$\therefore R = \frac{4}{4} = 1\% = \frac{1}{100}$$

$$T = 9 \times 4 = 36 \text{ months i.e. 3 years.}$$



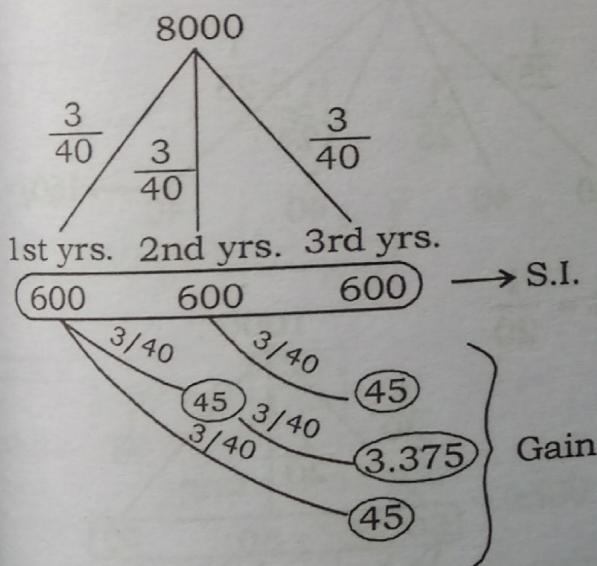
$$C.I. = 300 + 3 + .01 = 303.01$$

$$22.1; CI = 10000 \left\{ \left(1 + \frac{1}{100} \right)^3 - 1 \right\}$$

$$= 10000 \left\{ \frac{30301}{100 \times 100 \times 100} \right\} = ₹ 303.01$$

23.3; Paramount concept -1

$$R = \frac{15}{2}\% = \frac{15}{200} = \frac{3}{40}$$



Gain because of C.I.
i.e. $45 + 45 + 45 + 3.375 = 138.375 = 138.38$

23.3; Use the formula (Diff. for 3 yrs)

$$\text{Difference} = \frac{\text{Sum} \times r^2 (300 + r)}{(100)^3}$$

$$= \frac{8000 \times (7.5)^2 (300 + 7.5)}{(100)^3}$$

$$= 138.375 = ₹ 138.38$$

Therefore, I will get ₹ 138.38 more.

24.1; Paramount concept -1

Principal Amount

4	5
4	5
4	5
64	125
↓ × 80	↓ × 80
5120	10000

24.1; Paramount concept -2

$$25\% = \frac{1}{4}$$

This means gain of 1/ = on 4

	P	A
3yrs.	4	5
	4	5
	4	5
	64	125

$$\times 80 \downarrow \downarrow \times 80$$

$$5120 \cdot 10000$$

$$125 \times 80 = 10000 \text{ (A given is 10000)}$$

Hence 64 is also multiplied by 80

$$\therefore P = 5120/-$$

$$24.1; 10000 = x \left(1 + \frac{25}{100}\right)^3$$

$$\therefore x = \frac{1000 \times 4 \times 4 \times 4}{5 \times 5 \times 5} = ₹ 5120$$

25.4; Paramount concept -1

Time = 2 yrs.

$$\therefore \sqrt{\frac{9}{4}} = \frac{3}{2} \quad \therefore \text{Interest} = \frac{1}{2} = 50\%$$

25.4; Paramount concept -2

Let P = 1

$$A = \frac{9}{4}$$

$$A = P \left(1 + \frac{R}{100}\right)^t$$

$$\left(\frac{9}{4}\right)^{\frac{1}{t}} = 1 + \frac{R}{100}$$

$$\left(\frac{9}{4}\right)^{\frac{1}{2}} = 1 + \frac{R}{100}$$

$$\frac{3}{2} - 1 = \frac{R}{100}$$

$$\frac{R}{100} = \frac{1}{2}$$

$$\therefore R = 50\%$$

2nd Method:-

$$\frac{9}{4} \text{ in two yrs.}$$

$$\text{i.e. } \sqrt{\frac{9}{4}} = \frac{3}{2}$$

this means 2 becomes 3 and this is possible when rate of interest is 50%.

$$25.4; \frac{9}{4} S = S \left(1 + \frac{r}{100}\right)^2$$

$$\text{or, } \left(\frac{3}{2}\right)^2 = \left(1 + \frac{r}{100}\right)^2$$

$$\text{or, } 1 + \frac{r}{100} = \frac{3}{2}$$

$$\text{or, } \frac{r}{100} = \frac{1}{2} \quad \therefore r = 50\%$$

25.4; Other method:-

Let the principle be ₹ 1

$$1 \times \left(1 + \frac{r}{100}\right)^2 = \frac{9}{4}$$

$$1 + \frac{r}{100} = \frac{3}{2}$$

$$r = 50\%$$

26.1; Paramount concept -1

S.I. for 4 yr. at 4% = 16%

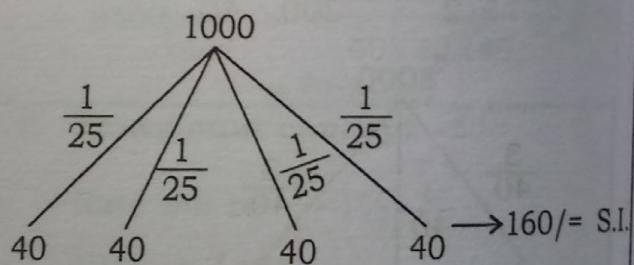
C.I. for 3 yrs at 5% = 15.7625%

$$\therefore 0.2375\% = ₹ 57$$

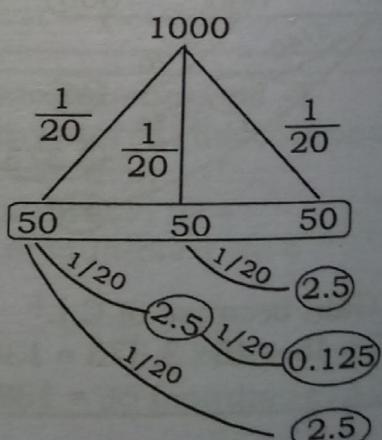
$$\therefore \text{Principal} = \frac{57}{0.2375} \times 100 \\ = ₹ 24000$$

26.1; Paramount concept -2

$$4\% = \frac{4}{100} = \frac{1}{25}$$



$$5\% = \frac{1}{20}$$



$$\begin{array}{r}
 \text{C.I.} = 150 \\
 + 7.5 \\
 + 0.125 \\
 \hline
 157.625
 \end{array}$$

difference 160
 - 1157.625
2.375

When difference = 2.375 then P = 1000

When difference = 57 then

$$P = \frac{1000 \times 57}{2.375} = 24000$$

27.3; Paramount concept -1

Interest = ₹ 168.54

$$\text{Interest rate} = \frac{168.54}{2809} \times 100 = 6\%$$

27.3; Paramount concept -2

$$2809 \quad \underbrace{2977.54}$$

diff. = 168.54/-

$$\text{Rate} = \frac{\text{Diff.}}{\text{original}} \times 100$$

$$\frac{168.54}{2809} \times 100 = 6\%$$

$$A = P \left(1 + \frac{R}{100}\right)^t$$

$$2809 = P \left(1 + \frac{6}{100}\right)^2$$

$$2809 = P \left(\frac{106}{100}\right)^2$$

$$P = \frac{2809 \times 100 \times 100}{106 \times 106} = 2500$$

Note: 6% is in option (3) only.

27.3; Difference in amounts

$$= 2977.54 - 2809 = ₹ 168.54$$

Now, we see that ₹ 168.54 is the interest on ₹ 2809 in one year.

Hence, required rate of interest
 $= \frac{168.54 \times 100}{2809} = 6\%$

Now, for the original sum,

$$2809 = x \left(1 + \frac{6}{100}\right)^2$$

$$\text{or, } 2809 = x \left(\frac{53}{50}\right)^2$$

$$\therefore x = \frac{2809 \times 50 \times 50}{53 \times 53} = ₹ 2500$$

28.2; Paramount concept -1

$$\text{Interest rate} = 8\frac{3}{4}\% = \frac{7}{80}$$

$$\frac{80}{87} \times \frac{167}{87} \times \text{Installment} = 13360$$

$$\therefore \text{Installment} = ₹ 7569$$

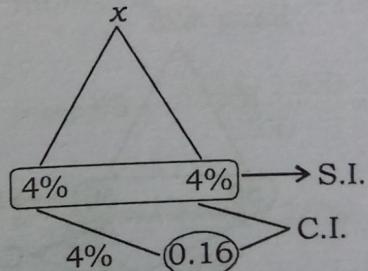
29.2; Paramount concept -1

C.I. for 2 years. at 4% = 8.16% = 2448

S.I. = 8%

$$\therefore 8\% = \frac{2448}{8.16} \times 8 = ₹ 2400$$

29.2; Paramount concept -2



C.I. = 8.16%

S.I. = 8%

8.16% gives 2448/-

$$8\% \text{ will give } \frac{8 \times 2448}{8.16} = 2400/-$$

29.2; We know $C.I. = A - P$

$$= p \left(1 + \frac{r}{100}\right)^t - p$$

$$\Rightarrow 2448 = p \left[\left(1 + \frac{4}{100}\right)^2 - 1 \right]$$

$$= p \left[\left(\frac{26}{25}\right)^2 - 1 \right] = p \left[\frac{676 - 625}{625} \right]$$

$$\Rightarrow \frac{2448 \times 625}{51} = p$$

i.e. $[p = ₹ 30000]$

Now using the formula

$$S.I. = \frac{prt}{100}$$

$$\Rightarrow S.I. = \frac{30000 \times 4 \times 2}{100} = ₹ 2400$$

30.3; Paramount concept -1

Difference = $0.64\% = ₹ 768$

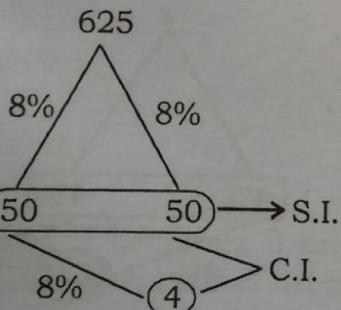
$$\therefore \text{Sum} = \frac{768}{0.64} \times 100 = ₹ 1,20,000$$

30.3; Paramount concept -2

$$8\% = \frac{8}{100} = \frac{8}{(25)} t \rightarrow \text{taken as P}$$

$$\downarrow$$

$$(25)^2$$



$$\text{Diff.} = 4$$

$$4 \rightarrow 768$$

$$\therefore 625 \rightarrow \frac{625 \times 768}{4} = 625 \times 192 \\ = 1,20,000/-$$

$$30.3; 768 = P \times \frac{8}{100} \times \frac{8}{100}$$

$$P = \frac{768 \times 625}{4}$$

$$P = ₹ 120000$$

31.1; Paramount concept -1

$$6\frac{1}{4}\% = \frac{25}{400} = \frac{1}{16} \rightarrow \text{Interest}$$

Principal Amount

16	17
16	17
16	17
4096	4913

$$\therefore P = 4096 =$$

31.1; Paramount concept -2

$$6\frac{1}{4}\% = \frac{25}{400} = \frac{1}{16} \rightarrow \text{Interest}$$

$$\therefore A = 17$$

	P	A
16	17	
16	17	
16	17	
↓	↓	
4096	4913	

$$\therefore P = 4096$$

31.1; Let the required present value of the sum = ₹ P

$$\text{Then, } 4913 = P \left(1 + \frac{25/4}{100}\right)^3$$

$$= P \left(1 + \frac{1}{16}\right)^3 = P \left(\frac{17}{16}\right)^3$$

$$\therefore P = 4913 \times \frac{16 \times 16 \times 16}{17 \times 17 \times 17} \\ = 16 \times 16 \times 16 = ₹ 4096$$

32.2; Paramount concept -1

At rate of 10% S.I. for 4 yrs. = 40%
 C.I. for 4 yrs. = 46.41%
 Difference = 6.41% of 1000
 = ₹ 64.10

$$32.2; \text{ S.I.} = \frac{1000 \times 10 \times 4}{100} = ₹ 400$$

$$\text{C.I.} = 1000 \left[\left(1 + \frac{10}{100} \right)^4 - 1 \right]$$

$$\left[\because \text{C.I.} = P \left[\left(1 + \frac{r}{100} \right)^n - 1 \right] \right]$$

$$= 1000 \left[\left(\frac{11}{10} \right)^4 - 1 \right]$$

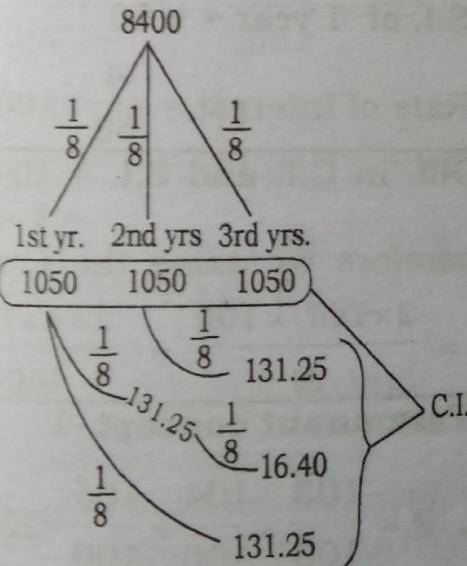
$$= 1000 \times \left(\frac{14641 - 10000}{10000} \right)$$

$$= \frac{1000 \times 4641}{10000} = ₹ 464.10$$

\therefore Required difference

$$= ₹ (464.10 - 400) = ₹ 64.10$$

33.3; Paramount concept -1

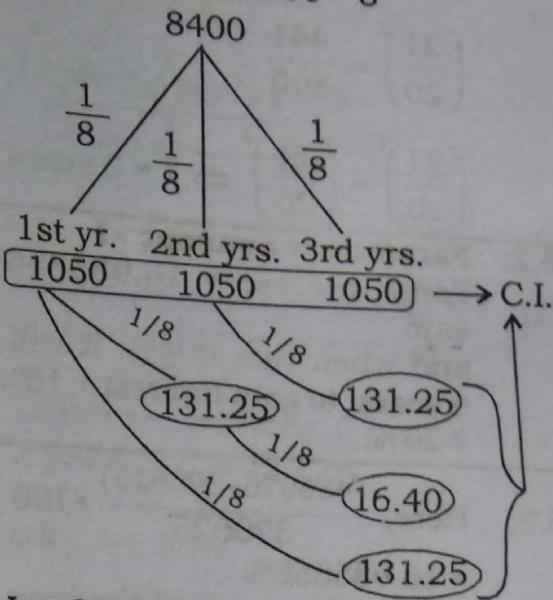


$$\text{C.I.} = 3 \times (1050) + 3 (131.25) + 16.40 \\ = 3560.15$$

\therefore Compound interest = ₹ 3560.15

33.3; Paramount concept -2

$$R = 12.5\% = \frac{125}{1000} = \frac{1}{8}$$



$$\text{C.I.} = 3 \times (1050) + 3 (131.25) + 16.40 \\ = 3560.15$$

34.1; Paramount concept -1

$$\text{Interest} = \frac{123}{1200} \times 100 = 10.25\%$$

If rate is 5% it will take 2 yrs. to gain interest equal to 10.25%

34.1; Paramount concept -2

$$\text{Interest} = \frac{\text{Diff.}}{\text{Original}} \times 100$$

$$\text{Interest} = \frac{1323 - 1200}{1200} \times 100$$

$$= \frac{123}{1200} \times 100 = 10.25\%$$

Note : that $5 + 5 + \frac{5 \times 5}{100} = 10.25$

Hence, the required time is 2 years.

$$34.1; \left(1 + \frac{5}{100}\right)^t = \frac{1323}{1200}$$

$$\left(\frac{21}{20}\right)^t = \frac{441}{400}$$

$$\left(\frac{21}{20}\right)^t = \left(\frac{21}{20}\right)^2 \Rightarrow t = 2 \text{ years}$$

35.2; Paramount concept -1

Total interest = 16.985856% of sum

and when rate is 4%, it will take 4 years. to gain interest + 16% and < 20%.

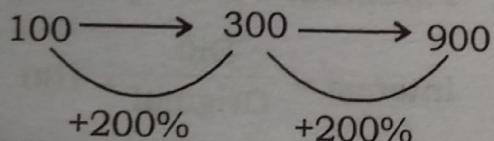
$$35.2; \text{ Here, } \frac{(456976 - 390625)}{390625} \times 100 = 16.985856\%$$

Hence, the required time can be 4 years only, becomes rate of interest is 4 p.c.p.a

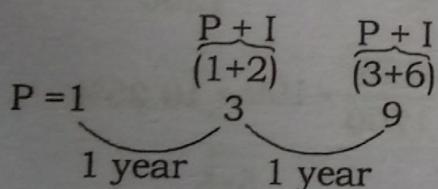
$$35.2; \left(1 + \frac{4}{100}\right)^t = \frac{456976}{390625}$$

$$\left(\frac{26}{25}\right)^t = \left(\frac{26}{25}\right)^4 \Rightarrow t = 4 \text{ years}$$

36.1; Paramount concept -1



36.1; Paramount concept -2



$$1\text{st year } I = \frac{200}{100} \times 1 = 2$$

$$A = 1 + 2 = 3$$

$$2\text{nd year } I = \frac{200}{100} \times 3 = 6$$

$$A = 3 + 6 = 9$$

36.1; Let the sum be ₹ x and the rate of compound interest be $r\%$ per annum; then

$$9x = x \left(1 + \frac{r}{100}\right)^2$$

$$\text{or, } 9 = \left(1 + \frac{r}{100}\right)^2$$

$$\text{or, } 3 = 1 + \frac{r}{100};$$

$$\text{or, } \frac{r}{100} = 2$$

$$\therefore r = 200\%$$

36.1; Other method:-

$$1 \times \left(1 + \frac{r}{100}\right)^2 = 9$$

$$\left(1 + \frac{r}{100}\right)^2 = 9$$

$$\frac{r}{100} = 3 - 1$$

$$r = 200\%$$

37.3; Paramount concept -1

C.I. of 2 years = ₹ 104

S.I. of 2 years = ₹ 100

S.I. of 1 year = ₹ 50

$$\therefore \text{Rate of interest} = \frac{4}{50} \times 100 = 8\%$$

$$37.3; \text{ Diff. in C.I. and S.I.} = 104 - 100 = ₹ 4$$

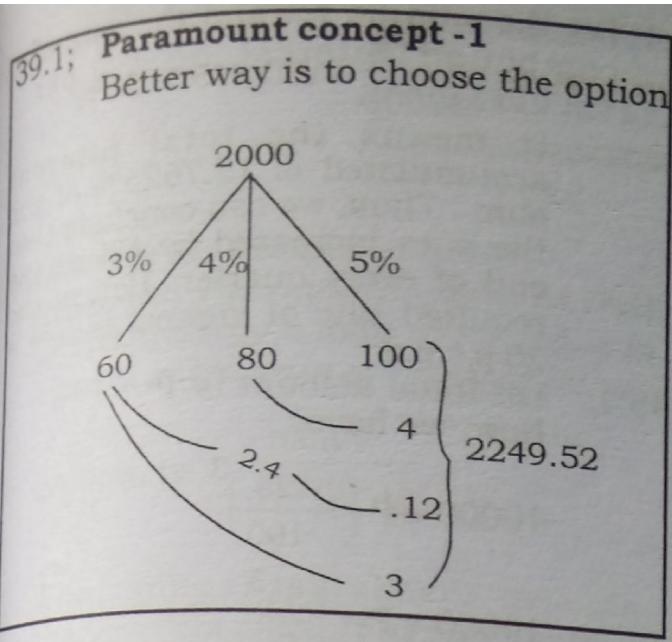
Therefore by using the formula

$$\text{Rate} = \frac{2 \times \text{Diff.} \times 100}{\text{SI}} = \frac{2 \times 4 \times 100}{100} = 8\%$$

38.4; Paramount concept -1

$$\text{Here, } P \times \frac{103}{100} \times \frac{104}{100} \times \frac{105}{100} = 2249.52$$

$$\therefore P = \frac{2249.52 \times 100 \times 100 \times 100}{103 \times 104 \times 105} = 2000$$



39.1; Suppose the sum is ₹ P
C.I. when interest is compounded

$$\text{yearly} = P \left[1 + \frac{20}{100} \right]^2 - P$$

CI when interest is compounded

$$\text{half-yearly} = P \left[1 + \frac{10}{100} \right]^4 - P$$

Now, we have,

$$P \left[1 + \frac{10}{100} \right]^4 - P \left[1 + \frac{20}{100} \right]^2 = 482$$

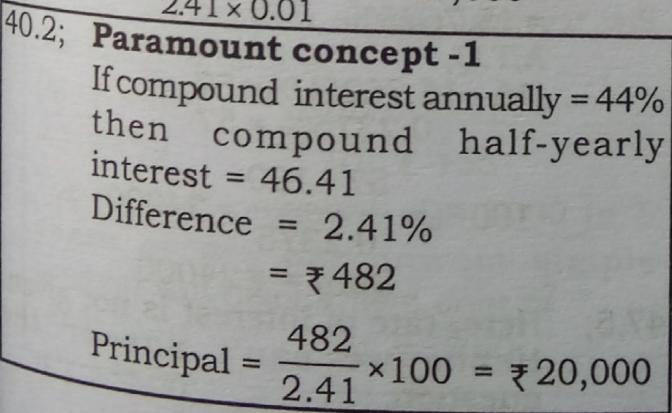
$$\Rightarrow P \left[(1.1)^4 - (1.2)^2 \right] = 482$$

$$\Rightarrow P[(1.1)^2 - (1.2)] [(1.1)^2 + (1.2)] = 482$$

$$\Rightarrow P[(1.21 - 1.2)(1.21 + 1.2)] = 482$$

$$\Rightarrow P[(0.01)(2.41)] = 482$$

$$\therefore P = \frac{482}{2.41 \times 0.01} = ₹ 20,000$$



40.2; Principal Amount

1st year 2nd years 3rd years
A A A → S.I.

B B C } C.I. - S.I.

Difference between C.I. & S.I. for
3 years. = $(3A + 3B + C) - 3A$
= $3B + C$

Difference between C.I. & S.I. for
2 years. = $(2A + B) - 2A$
= B

Now, we have

$$\frac{3B + C}{B} = \frac{19}{6}$$

$$3B + C = 19$$

$$B = 6$$

$$\text{So, } C = 1$$

$$\therefore \text{Rate percent per annum} = \frac{1}{6} \times 100$$

$$= 16 \frac{2}{3}\%$$

41. Suppose, the amount (sum)
deposited for the two sons are A
and B respectively. Now, we are

$$A \left(1 + \frac{4}{100} \right)^5 = B \left(1 + \frac{4}{100} \right)^7$$

$$\frac{A}{B} = \left(1 + \frac{4}{100} \right)^2 = \left(\frac{26}{25} \right)^2 = \frac{676}{625}$$

$$\text{Now, } (675 + 625) \text{ units} = 2602$$

$$1301 \text{ units} = 2602$$

$$1 \text{ unit} = 2/-$$

$$\begin{aligned} \text{Amount deposited into the account} \\ \text{of 1st son} &= 676 \times 2 \\ &= 1352/- \end{aligned}$$

42.4; Let 'A' be the son having age 15 years.

'B' be the son having age 13 years.

\therefore Amount A after 3 years. = Amount B after 5 years.

$$A \left(1 + \frac{4}{100}\right)^3 = B \left(1 + \frac{4}{100}\right)^5$$

$$\therefore \frac{A}{B} = \left(1 + \frac{4}{100}\right)^2 = \left(\frac{26}{25}\right)^2 = \frac{676}{625}$$

Therefore, $(676 + 625)$ units = ₹ 390300

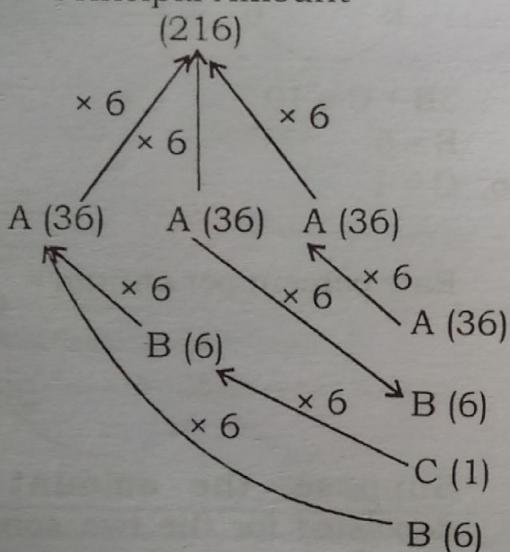
1 unit = ₹ 300

Amount deposited in A's account
 $= 300 \times 676 = ₹ 202800$

Amount deposited in B's Account
 $= 300 \times 625 = ₹ 187500$

$$43.1; 16\frac{2}{3}\% = \frac{50}{3} \times \frac{1}{100} = \frac{1}{6}$$

Principal Amount



Compound interest for the 3rd year

$$= (A + 2B + C)$$

$$= 36 + 2 \times 6 + 1$$

$$= 49$$

3rd yrs. C.I. Principal amount
 49.....216

$$24.50..... \frac{216 \times 24.50}{49} = 108$$

Principal amount = ₹ 108

$$5 \text{ yrs. S.I.} = \frac{50}{3} \times \frac{5}{100} \times 108 = ₹ 90$$

$$44.1; \text{Here, } \frac{5044}{32000} \times 100 = 15.7625\%$$

It means the total interest accumulated is 15.7625% of the sum. Thus, we can conclude that the sum increased by 5% at the end of every quarter. Hence, the required rate of interest is $5 \times 4 = 20$ p.c.p.a

45.1; Let Initial amount is 'P'
 Now, we have

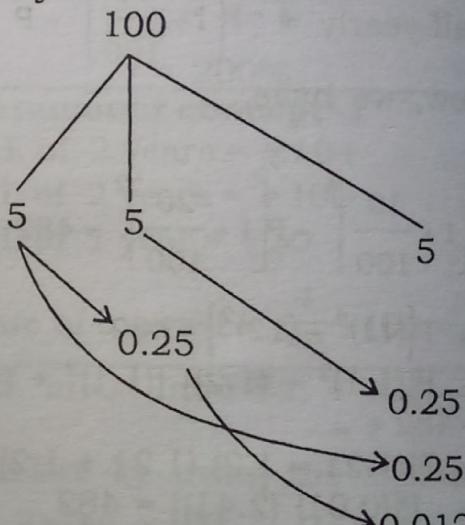
$$10000 = P \left(1 + \frac{25}{100}\right)^3$$

$$10000 = P \times \left(\frac{5}{4}\right)^3$$

$$10000 = P \times \frac{125}{64}$$

$$P = \frac{10000 \times 64}{125} = ₹ 5120$$

46.2; Let the amount is 100.
 4 yrs. S.I. at 4% P.A. = 16%
 3 yrs. C.I. at 5% P.A.



$$3 \text{ yrs. C.I. at 5% P.A.} = (5 + 5 + 5 + 0.25 + 0.25 + 0.25 + 0.0125)\% = 15.7625\%$$

A.T.Q,

$$(16 - 15.7625)\% = 57$$

$$0.2375\% = 57$$

$$100\% = \frac{57 \times 100}{0.2375} = 24000$$

Sum = ₹ 24000

47.5; Here, rate of interest is not given.
 Hence we can't answer the question.

INSTALLMENTS

Installment at Simple Interest

Theorem: The annual payment that will discharge a debt of Rs A due in t years at the rate of interest r% per

$$\text{annum is } \frac{100A}{100t + \frac{rt(t-1)}{2}}$$

1. What annual instalment will discharge a debt of Rs 2210 due in 4 years at 7% simple interest?
 (A) ₹ 450 (B) ₹ 500
 (C) ₹ 550 (D) ₹ 575
2. What quarterly payment will discharge a debt of ₹ 2120 in one year at 16% per annum simple interest?
 (A) ₹ 1000 (B) ₹ 400
 (C) ₹ 850 (D) ₹ 500
3. What annual payment will discharge a debt of ₹ 19350 due 4 years hence at the rate of 5% simple interest?
 (A) ₹ 4600 (B) ₹ 3500
 (C) ₹ 4500 (D) ₹ 4550
4. What quarterly payment will discharge a debt of ₹ 2280 due in two years at 16% per annum simple interest?
 (A) ₹ 500 (B) ₹ 450
 (C) ₹ 550 (D) ₹ 250
5. The annual payment of ₹ 80 in 5 years at 5% per annum simple interest will discharge a debt of
 (A) ₹ 440 (B) ₹ 350
 (C) ₹ 450 (D) ₹ 455
6. The annual payment of ₹ 1000 in 5 years at 4% per annum simple interest will discharge a debt of
 (A) ₹ 5440 (B) ₹ 5400
 (C) ₹ 5600 (D) ₹ 5800

7. The annual payment of ₹ 700 in 5 years at 10% per annum simple interest will discharge a debt of
 (A) ₹ 4440 (B) ₹ 4350
 (C) ₹ 4250 (D) ₹ 4200

Installment at Compound Interest

Theorem: A sum of Rs P is to be paid back in n equal annual instalments. If the interest is compounded annually at R% per annum, then the value of each instalment is given by

$$\left[\frac{P}{\left(\frac{100}{100+R} \right) + \left(\frac{100}{100+R} \right)^2 + \dots + \left(\frac{100}{100+R} \right)^n} \right]$$

8. A sum of ₹ 2100 is to be paid back in 2 equal annual instalments. How much is each instalment if the interest is compounded annually at 10% per annum?
 (A) ₹ 1210 (B) ₹ 1240
 (C) ₹ 1230 (D) ₹ 1220
9. A sum of ₹ 13000 is to be paid back in 2 equal annual instalments. How much is each instalment if the interest is compounded annually at 8% per annum?
 (A) ₹ 7280 (B) ₹ 7290
 (C) ₹ 7270 (D) ₹ 7920
10. A sum of ₹ 25500 is to be paid back in 2 equal annual instalments. How much is each instalment if the interest is compounded annually at 4% per annum?
 (A) ₹ 13530 (B) ₹ 13570
 (C) ₹ 13510 (D) ₹ 13520

11. A sum of ₹ 24600 is to be paid back in 2 equal annual instalments. How much is each instalment if the interest is compounded annually at 5% per annum?
 (A) ₹ 13130 (B) ₹ 13320
 (C) ₹ 13230 (D) ₹ 13420
12. A sum is to be paid back in 2 equal annual instalments. The interest is compounded annually at 6% per annum. If each instalment be ₹ 2809 then what is the sum?
 (A) ₹ 5100 (B) ₹ 5140
 (C) ₹ 5130 (D) ₹ 5150
13. A sum is to be paid back in 2 equal annual instalments. The interest is compounded annually at 16% per annum. If each instalment be ₹ 8410 then what is the sum?
 (A) ₹ 13400 (B) ₹ 13500
 (C) ₹ 13600 (D) ₹ 13700
14. A sum is to be paid back in 2 equal annual instalments. The interest is compounded annually at 7% per annum. If each instalment be ₹ 11449 then what is the sum?
 (A) ₹ 20600 (B) ₹ 20900
 (C) ₹ 20500 (D) ₹ 20700
15. A sum is to be paid back in 2 equal annual instalments. The interest is compounded annually at 9% per annum. If each instalment be ₹ 11881 then what is the sum?
 (A) ₹ 20600 (B) ₹ 20900
 (C) ₹ 20500 (D) ₹ 20700
16. A sum of ₹ 3310 is to be paid back in 3 equal annual instalments. How much is each instalment if the interest is compounded annually at 10% per annum?
 (A) ₹ 1321 (B) ₹ 1343
 (C) ₹ 1325 (D) ₹ 1331
17. A sum of ₹ 45500 is to be paid back in 3 equal annual instalments. How much is each instalment if the interest is compounded annually at 20% per annum?
 (A) ₹ 21600 (B) ₹ 21700
 (C) ₹ 21800 (D) ₹ 21900
18. A sum of ₹ 25220 is to be paid back in 3 equal annual instalments. How much is each instalment if the interest is compounded annually at 5% per annum?
 (A) ₹ 9361 (B) ₹ 9261
 (C) ₹ 9621 (D) ₹ 9216.
19. A sum of ₹ 52725 is to be paid back in 3 equal annual instalments. How much is each instalment if the interest is compounded annually at 12% per annum?
 (A) ₹ 21952 (B) ₹ 21592
 (C) ₹ 21852 (D) ₹ 21259
20. A sum is to be paid back in 3 equal annual instalments. The interest is compounded annually at 25% per annum. If each instalment be ₹ 12500 then what is the sum?
 (A) ₹ 24400 (B) ₹ 25400
 (C) ₹ 24500 (D) ₹ 25500
21. A sum is to be paid back in 3 equal annual instalments. The interest is compounded annually at 30% per annum. If each instalment be ₹ 21970 then what is the sum?
 (A) ₹ 39800 (B) ₹ 39900
 (C) ₹ 39950 (D) ₹ 39990
22. A sum is to be paid back in 3 equal annual instalments. The interest is compounded annually at 24% per annum. If each instalment be ₹ 29791 then what is the sum?
 (A) ₹ 59325 (B) ₹ 59225
 (C) ₹ 59025 (D) ₹ 59125

23. A sum is to be paid back in 3 equal annual instalments. The interest is compounded annually at 15% per annum. If each instalment be ₹ 24334 then what is the sum?

- (A) ₹ 56560 (B) ₹ 55560
(C) ₹ 57560 (D) ₹ 58560

24. A sum of ₹ 46410 is to be paid back in 4 equal annual instalments. How much is each instalment if the interest is compounded annually at 10% per annum?

- (A) ₹ 14441 (B) ₹ 14541
(C) ₹ 14641 (D) ₹ 14741

25. A sum is to be paid back in 4 equal annual instalments. The interest is compounded annually at 20% per annum. If each instalment be ₹ 12960 then what is the sum?

- (A) ₹ 34400 (B) ₹ 35400
(C) ₹ 34500 (D) ₹ 33550

26. A sum of ₹ 7500 is to be paid back in 3 annual instalments. How much is each instalment, if the interest is compounded annually on the balance at 4% and is to be included in each instalment?

- (A) ₹ 2800, ₹ 2700, ₹ 2600
(B) ₹ 2900, ₹ 2800, ₹ 2700
(C) ₹ 2800, ₹ 2750, ₹ 2600
(D) ₹ 2900, ₹ 2700, ₹ 2600

Theorem: A person buys an item on the terms that he is required to pay Rs P cash down payment followed by Rs x at the end of first year, Rs y at the end of second year and Rs z at the end of third year. Interest is charged at the rate of R% per annum, then the

- (i) Cash price of the item is given by
Rs

$$P + \frac{100}{100+R} \left[x + y \left(\frac{100}{100+R} \right) + z \left(\frac{100}{100+R} \right)^2 \right]$$

and

- (ii) The total interest charged is given by

$$\text{Rs } [P + x + y + z - \text{Cash Price}]$$

27. Subash purchased a refrigerator on the terms that he is required to pay ₹ 1500 cash down payment followed by ₹ 1020 at the end of first year, ₹ 1003 at the end of second year and ₹ 990 at the end of third year. Interest is charged at the rate of 10% per annum compound interest. What is the cash price of the refrigerator?

- (A) ₹ 4000 (B) ₹ 4100
(C) ₹ 4150 (D) ₹ 4200

28. Subash purchased a refrigerator on the terms that he is required to pay ₹ 1500 cash down payment followed by ₹ 1020 at the end of first year, ₹ 1003 at the end of second year and ₹ 990 at the end of third year. Interest is charged at the rate of 10% per annum compound interest. What is the total interest paid for the refrigerator?

- (A) ₹ 500 (B) ₹ 510
(C) ₹ 512 (D) ₹ 513