

EXERCISE 9A

For SSC GD & MTS Exams

1. A farmer borrowed ₹132000 from a money lender to do cultivation in his field. The rate of interest is 12.5% per annum compounded annually. At the end of two years, he cleared his loan by paying ₹107.062.50 and his scooter. The cost (in ₹) of the scooter is:
SSC MTS 2/11/2021 (Shift-2)
(a) 75000 (b) 45000 (c) 60000 (d) 50000
2. If a sum increases by 21% after 2 years, then the rate of compound interest per annum, when compounded annually, must be:
SSC MTS 02/11/2021 (Shift-1)
(a) 10.5% (b) 11.5% (c) 10% (d) 11%
3. In what time will ₹9600 become ₹11094 at $7\frac{1}{2}\%$ p.a. compounded annually?
SSC MTS 27/10/2021 (Shift-3)
(a) 3 years (b) 2 years
(c) $2\frac{1}{2}$ years (d) $1\frac{1}{2}$ years
4. Amit borrows a sum of ₹8000 at 10% p.a. compound interest for 4 years. He repays ₹2800 at the end of the first year and ₹2600 at the end of the second year. To clear the loan, how much should he pay after 4 years, interest being compounded yearly?
SSC MTS 27/10 2021(Shift-2)
(a) ₹4800 (b) ₹4880
(c) ₹4840 (d) ₹4.780
5. Sumit invested ₹50000 each in two banks for 2 years. The first bank gives simple interest at the rate of 11% per annum, while the other bank gives compounded interest, compounded annually at the rate of 10% per annum. How much interest did he earn from the two banks in 2 years?
SSC MTS 27/10/2021 (Shift-1)
(a) ₹21000 (b) ₹10000
(c) ₹10500 (d) ₹21500
6. Kanika took a loan of ₹10000 for 2 years on compound interest at the rate of 5% per annum, interest being compounded annually. How much money would she have saved if she had taken the loan on simple interest?
SSC MTS 27/10/2021 (Shift-1)
(a) ₹1025 (b) ₹1000 (c) ₹25 (d) ₹400
7. A sum of ₹ x amounts to ₹27900 in 3 years and to ₹41850 in 6 years at a certain rate per cent per annum when the interest is compounded yearly. The value of x is:
SSC MTS 26/10/2021 (Shift-3)
(a) 18400 (b) 17600 (c) 17800 (d) 18600
8. At what percent per annum will ₹12500 amount to ₹14045 in 2 years if the interest is compounded annually?
SSC MTS 26/10/2021 (Shift-3)
(a) 7% (b) 9% (c) 6% (d) 8%
9. A sum of money doubled itself at certain rate of compound interest in 15 years. In how many years will it become four times of itself?
SSC MTS 26/10/2021 (Shift-1)
(a) 45 (b) 30 (c) 25 (d) 15
10. What is the difference (in ₹) between the compound interest, when interest is compounded 6-monthly, and the simple interest on a sum of ₹20000 for $1\frac{1}{2}$ years at 10% p.a.?
SSC MTS 22/10/2021 (Shift-3)
(a) 76.25 (b) 91.5 (c) 87 (d) 152.5
11. If a certain sum at compound interest becomes $2\frac{1}{2}$ times in 5 years, then in how many years will it become $6\frac{1}{4}$ times, at the same rate of interest p.a.?
SSC MTS 22/10/2021 (Shift-2)
(a) 9 years (b) 12 years (c) 8 years (d) 10 years
12. A certain sum amounts to ₹1543.50 when invested for 2 years at 5% per annum compound interest. What is the sum (in ₹)?
SSC MTS 20/10/2021 (Shift-3)
(a) 1500 (b) 1400 (c) 1200 (d) 1600
13. A farmer borrowed ₹132000 from a money lender to do cultivation in his field. The rate of interest is 12.5% p.a. compounded annually. At the end of two years, he cleared his loan by paying ₹107062.50 and his scooter. The cost (in ₹) of the scooter is:
SSC MTS 20/10/2021 (Shift-2)
(a) 50000 (c) 75000 (b) 45000 (d) 60000
14. What will be the compound interest on a sum of ₹15000 at the interest rate of 8% per annum in one year, interest compounded semi-annually?
SSC MTS 20/10/2021 (Shift-1)
(a) ₹1224 (c) ₹6224 (b) ₹1200 (d) ₹16224

15. If an amount becomes 4000 rupees after two years and 6000 rupees after four years at the same rate of compound interest (compounded annually), what is the amount?

SSC MTS 02/08/2019 (Shift-2)

- (a) ₹2888.88 (b) ₹2666.66
(c) ₹2777.77 (d) ₹2866.66

16. What is the present value of ₹14739 payable in 3 years at the rate of 6.25% yearly compound interest?

SSC MTS 21/08/2019 (Shift-3)

- (a) ₹12184 (b) ₹12288 (c) ₹12473 (d) ₹12148

17. The difference between compound interest and simple interest on a sum for 2 years at 20% p.a. is ₹200. The sum is:

SSC MTS 21/08/2019 (Shift-2)

- (a) ₹3000 (b) ₹4500 (c) ₹4000 (d) ₹5000

18. A sum invested at 10% compound interest per annum becomes ₹19965 in 3 years. The same sum will become ₹x in $2\frac{2}{5}$ years. If the interest is compounded annually in both the cases, then find the value of x.

SSC MTS 20/08/2019 (Shift-2)

- (a) ₹18855 (b) ₹18768 (c) ₹18867 (d) ₹18876

19. Calculate the compound interest on ₹15625 for 2 years at the rate of 12% p.a., if the interest is compounded 8-monthly.

SSC MTS 22/08/2019 (Shift-2)

- (a) ₹3075 (b) ₹4058 (c) ₹3675 (d) ₹4088

20. A sum of ₹3600 invested on compound interest becomes ₹4900 in 2 years. (interest is compounded annually) What is the rate of interest per annum?

SSC MTS 19/08/2019 (Shift-2)

- (a) $18\frac{1}{3}$ (b) $17\frac{1}{3}$ (c) $15\frac{2}{3}$ (d) $16\frac{2}{3}$

21. What is the compound interest on ₹5000 in 2 years at the rate of 20% per annum? (interest compounded half yearly)

SSC MTS 19August 2019 (Shift-1)

- (a) ₹2340.50 (b) ₹2275.50
(c) ₹2290.50 (d) ₹2320.50

22. What is the difference between the compound interests on ₹10000 for 2 years at 20% per annum when the interests are compounded half yearly and yearly ?

SSC MTS 16/08/2019 (Shift-2)

- (a) ₹440 (b) ₹241 (c) ₹441 (d) ₹240

23. How much will a principal of ₹5000 invested on compound interest (compounded annually) amount to, in three years at a rate of 50% per annum?

SSC MTS 16/08/2019 (Shift-1)

- (a) ₹16375 (b) ₹11250 (c) ₹16875 (d) ₹17275

24. What is the effective annual rate of interest corresponding to a rate of 10% per annum compounded half-yearly?

SSC MTS 14/08/2019 (Shift-2)

- (a) 10.75% (b) 10.5% (c) 10% (d) 10.25%

25. A principal increases 21% with compound interest in two years. Calculate the simple interest for 4 years on ₹1000 at the same rate of interest.

SSC MTS 14/08/2019 (Shift-1)

- (a) ₹320 (b) ₹400 (c) ₹360 (d) ₹420

26. If the rate of compound interest, compounded half yearly, is 20% per annum, then calculate the interest to be paid on ₹100000 for 2 years.

SSC MTS 14/08/2019 (Shift-1)

- (a) ₹46410 (b) ₹44000 (c) ₹21000 (d) ₹33100

27. A man invested a sum of money at compound interest. It amounted to ₹12100 in two years and to ₹13310 in three years. The rate of interest per annum is:

SSC MTS 13/08/2019 (Shift-3)

- (a) 11% (b) 9.5% (c) 12.5% (d) 10%

28. A sum doubles in 4 years at a certain rate of compound interest. In how many years does it amount to 8 times itself at the same rate?

SSC MTS 13/08/2019 (Shift-2)

- (a) 9 (b) 12 (c) 15 (d) 6

29. What will be the compound interest for 3 years on ₹5120 at the rate of 12.5% (compounded annually)?

SSC MTS 13/08/2019 (Shift-1)

- (a) ₹2280 (b) ₹1960 (c) ₹2120 (d) ₹2170

30. The simple interest on a sum of money for 2 years at certain rate of interest is ₹320. The compound interest, compounded annually on the same sum for the same duration and at the same rate of interest is ₹384. The sum (in ₹) is:

SSC MTS 9/08/2019 (Shift-2)

- (a) 400 (b) 250 (c) 200 (d) 309

SOLUTIONS

Sol. 1. (c) : Trick ; $\frac{12.5}{100} = \frac{1}{8}$ $\left. \begin{array}{l} + 8 \\ 8 \\ \hline 64 \end{array} \right\} \begin{array}{l} 9 \\ 9 \\ \hline 81 \end{array}$

64 units = 132000

1 unit = 2062.5

∴ 81 units = 81 × 2062.5 = 167062.5

∴ Cost of scooter = 167062.5 – 107062.5 = 60000

Sol. 2. (c) : Let principal = 100

P Amount

100 121

After 2 years = 21

$\sqrt{\frac{121}{100}} = \frac{11}{10} \left. \begin{array}{l} \leftarrow \\ \leftarrow \end{array} \right\} 1$

Rate % = $\frac{1}{10} \times 100 = 10\%$

$$\text{Sol. 3. (b) : } \frac{15}{2 \times 100} = \frac{43}{40}$$

$$\left(\frac{43}{40}\right)^t = \frac{11094}{9600} = \left(\frac{43}{40}\right)^2$$

$$\therefore t = 2 \text{ years}$$

$$\text{Sol. 4. (c) : Given : Amount borrow} = ₹ 8000$$

$$\text{Rate\%} = 10\%$$

Remaining amount after 1 year

$$= 8000 + 8000 \times \frac{10}{100} - 2800$$

$$= 8800 - 2800 = 6000$$

Remaining amount after 2 years

$$= 6000 + 6000 \times \frac{10}{100} - 2600$$

$$= 6600 - 2600 = 4000$$

$$\text{Amount at the end of 4th year} = 4000 + 4000 \times \frac{121}{100}$$

$$= ₹ 4880$$

Sol. 5. (d) : According to the question,

$$\text{S.I.} = 11 + 11 = 22\%$$

$$\text{C.I.} = 10 + 11 = 21\%$$

$$\text{Total interest} = 43\%$$

$$\therefore \text{Total interest after two years} = 50000 \times \frac{43}{100}$$

$$= ₹ 21500$$

$$\text{Sol. 6. (c) : Trick : CI} = 5 + 5 + \frac{5 \times 5}{100} = 10.25\%$$

$$\text{SI} = 2 \times 5 = 10\%$$

$$\text{Difference b/w CI and SI} = 10.25\% - 10\% = 0.25\%$$

$$\text{Save money} = 0.25 \times \frac{10000}{100 \times 100} = ₹ 25$$

Sol. 7. (d) : Given : Principal = X

$$\text{Amount after 3 years} = ₹ 27900$$

$$\text{Amount after 6 years} = ₹ 41850$$

According to the question,

$$\text{Ist condition } 27900 = x \left(1 + \frac{r}{100}\right)^3 \quad \text{(I)}$$

$$\text{IInd condition } 41850 = x \left[\left(1 + \frac{r}{100}\right)^3\right]^2 \quad \text{(II)}$$

Then,

$$41850 = x \left(\frac{27900 \times 27900}{x^2}\right) \left(\because \frac{27900}{x} = \left(1 + \frac{r}{100}\right)^3\right)$$

$$x = \frac{27900 \times 27900}{41850} = ₹ 18600$$

Sol. 8. (c) : According to the question,

$$\text{After 2 years} = \sqrt{\frac{14045}{12500}} = \sqrt{\frac{2809}{2500}} = \left(\sqrt{\frac{53}{50}}\right)^2 = \frac{53}{50}$$

$$\text{Rate\%} = \frac{3}{50} \times 100 = 6\%$$

Sol. 9. (b) : Years	Money
15	2 times
$\frac{15 + 15}{2}$	$2 \times 2 = 4 \text{ times}$
Total time = 30 years	

Sol. 10. (a) : According to the question,

$$\text{Rate\% of 6 months} = \frac{10}{2} = 5\%$$

$$\text{Time} = 1 \frac{1}{2} \text{ years} = 39 \text{ workers}$$

$$\text{Amount (CI)} = 15.7625\%$$

$$\text{Amount (SI)} = 15\%$$

$$\therefore \text{Different between CI and SI} = 0.7625 \times \frac{10000}{100} = ₹ 76.25$$

Sol. 11. (d) : Trick :

Years	money
5	2.5 times
5	$2.5 \times 2.5 = 6.25 \text{ times}$
10 years	$6 \frac{1}{4} \text{ times}$

$$\text{Sol. 12. (b) Trick: } \frac{5}{100} = \frac{1}{20} \left. \begin{array}{l} \nearrow \\ \nearrow \end{array} \right\} + \begin{array}{r} 20 \\ 20 \\ \hline 400 \end{array} \quad \begin{array}{r} 21 \\ 21 \\ \hline 441 = 1543.50 \\ 1 \text{ unit} = 3.5 \end{array}$$

$$400 \text{ units} = 400 \times 3.5 = ₹ 1400$$

$$\text{Sol. 13. (d) Trick: } \frac{12.5}{100} = \frac{1}{8} \left. \begin{array}{l} \nearrow \\ \nearrow \end{array} \right\} + \begin{array}{r} 8 \\ 8 \\ \hline 64 \end{array} \quad \begin{array}{r} 9 \\ 9 \\ \hline 81 \end{array}$$

$$\therefore 64 \text{ units} = 132000$$

$$\therefore 1 \text{ unit} = 2062.5$$

$$\therefore 81 \text{ units} = 81 \times 2062.5 = 167062.5$$

$$\therefore \text{Cost of scooter} = 167062.5 - 107062.5 = 60000$$

$$\text{Sol. 14. (a) Trick: Rate\% (half yearly)} = \frac{8}{2} = 4\%$$

$$\frac{4}{100} = \frac{1}{25} \left. \begin{array}{l} \nearrow \\ \nearrow \end{array} \right\} +$$

$$\begin{array}{r} 25 \\ 25 \\ \hline 625 \end{array} \quad \begin{array}{r} 26 \\ 26 \\ \hline 676 \end{array}$$

$$\begin{array}{r} 25 \\ 25 \\ \hline 625 \end{array} \quad \begin{array}{r} 26 \\ 26 \\ \hline 676 \end{array}$$

$$\text{interest} = 51$$

$$\therefore 625 \text{ units} = 15000$$

$$\therefore 1 \text{ unit} = \frac{15000}{625} = 24$$

$$\therefore 51 \text{ unit} = 51 \times 24$$

$$= ₹ 1224$$

Sol. 15. (b) : Let principal be = P

According to the question,

$$\text{Ist condition } 4000 = p \left(1 + \frac{r}{100}\right)^2 \quad \text{(I)}$$

$$\text{IInd condition } 6000 = p \left[\left(1 + \frac{r}{100}\right)^2\right]^2 \quad \text{(II)}$$

Equation $\frac{\text{II}}{\text{I}}$

$$\frac{6000}{4000} = P \left(1 + \frac{r}{100}\right)^2$$

$$\frac{3}{2} = P \times 4000$$

$$P = \frac{4000 \times 2}{3} = ₹ 2666.66$$

Sol. 16. (b) Trick: $\frac{6.25}{100} = \frac{1}{16} \sqrt{+} P$ A

16	17
16	17
16	17
<hr/>	
4096	4913
= 14739	
1 unit = 3	

4096 units = 3 × 4096 = 12288

Sol. 17. (d) : According to the question,

Amount (CI) = $20 + 20 + \frac{20 \times 20}{100} = 44\%$

Amount (SI) = $20 + 20 = 40\%$

∴ Difference = $44 - 40 = 4\%$

∴ $4\% = 200$

∴ $1\% = \frac{200}{4}$

∴ $100\% = \frac{200}{4} \times 100 = ₹ 5000$

Sol. 18. (d) Trick: $\frac{10}{100} = \frac{1}{10} \sqrt{+}$

10	11
10	11
10	11
<hr/>	
1000	1331
= 19965	
1 unit = 15	

1000 units = 15 × 1000 = 15000

Now, time = $2\frac{2}{5}$ years

Amount = $15000 \times \frac{121}{100} \times \frac{26}{25} = ₹ 18876$

Sol. 19. (b) Short Trick: Time = 3T, Rate% = 8%

$$\frac{8}{100} = \frac{2}{25} \sqrt{+} + \begin{matrix} (25)^3 & (27)^3 \\ 15625 & 19683 \\ \hline & (4058) \end{matrix}$$

∴ 15625 units = 15625

∴ 1 unit = 1

∴ 4058 units = ₹ 4058

Sol. 20. (d) : Trick

$$\sqrt{\frac{4900}{3600}} = \frac{7^1 \leftarrow 1}{6 \rightarrow 1}$$

∴ Rate% = $\frac{1}{6} \times 100 = 16\frac{2}{3}\%$

Sol. 21. (d) Trick: Time = $2 \times 2 = 4$ half yearly

Rate% = $\frac{20}{2} = 10\%$

$$\frac{10}{100} = \frac{1}{10} \sqrt{+} + \begin{matrix} (10)^4 & (11)^4 \\ 10000 & 14641 \\ \hline & I = 4641 \end{matrix}$$

∴ 10000 units = 5000

∴ 4641 units = $\frac{5000 \times 4641}{10000} = ₹ 2320.5$

Sol. 22. (b) : According to the question,

Ist case $\frac{20}{100} = \frac{1}{5} \sqrt{+} + \begin{matrix} (5)^2 & (6)^2 \\ 25 & 36 \\ \hline & Int = 11 \end{matrix}$

∴ 25 units = 10000

∴ 11 units = $\frac{10000 \times 11}{25} = ₹ 4400$

IInd case

Times = $2 \times 2 = 4$ half yearly, Rate = $\frac{20}{2} = 10\%$

$$\frac{10}{100} = \frac{1}{10} \sqrt{+} + \begin{matrix} (10)^4 & (11)^4 \\ 10000 & 14641 \\ \hline & int = 4641 \end{matrix}$$

∴ 10000 units = 10000

∴ 4641 units = $\frac{10000 \times 4641}{10000} = ₹ 4641$

Difference between interest = $4641 - 4400 = ₹ 241$

Sol. 23. (c) Trick: $\frac{50}{100} = \frac{1}{2} \sqrt{+} + \begin{matrix} (2)^3 & (3)^3 \\ 8 & 27 \\ \hline & \end{matrix}$

∴ 8 units = 5000

∴ 27 units = $\frac{5000 \times 27}{8} = ₹ 16875$

Sol. 24. (d) : According to the question,

Rate% = $\frac{10}{2} = 5\%$ half yearly

1 year = 2 half yearly

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

Sol. 25. (b) : According to the question,

$$21\% = \frac{21}{100} \sqrt{+} = \sqrt{\frac{121}{100}} = \frac{11}{10}$$

Rate = 10%

Now, SI = $\frac{100 \times 4 \times 10}{100} = ₹ 400$

Sol. 26. (a) Trick: Rate = $\frac{20}{2} = 10\%$ half yearly Time = $2 \times 2 = 4$ half yearly

$$\frac{10}{100} = \frac{1}{10} \uparrow + \begin{array}{cc} (10)^4 & (11)^4 \\ 10000 & 14641 \\ \uparrow & \uparrow \\ & \text{Int} = 4641 \end{array}$$

$\therefore 10000 \text{ units} = 10000$

$$\therefore 4641 \text{ unit} = \frac{100000 \times 4641}{10000} = 246410$$

Sol. 27. (d) :

Let option (d) = 10%

According to the question,

$$\frac{10}{100} \uparrow = \frac{1}{10} \begin{array}{cc} (10) & 11 \\ 10 & 11 - 121 \\ \frac{10}{1000} & \frac{11}{1331} \end{array}$$

Sol. 28. (b) : Year Money (Amount)
 4 2 times
 4 2×2 times
 4 $2 \times 2 \times 2 = 8$ times
 Year = 12

Sol. 29. (d) Trick:

$$\frac{12.5}{100} = \frac{1}{8} \uparrow + \begin{array}{cc} (8)^3 & (9)^3 \\ 512 & 729 \\ \uparrow & \uparrow \\ & \text{Int} = 217 \end{array}$$

$\therefore 512 \text{ units} = 5120$

$$\therefore 217 \text{ units} = \frac{5120}{512} \times 217 = ₹ 2170$$

Sol. 30. (a) : Rate% = $\frac{384 - 320}{320} \times 2 \times 100 = 40\%$

SI = $40 + 40 = 80\%$

Now $\therefore 80\% = 320^7$

$$\therefore 100\% = \frac{320 \times 100}{80} = ₹ 400$$

EXERCISE 9B

For SSC CHSL Exam

1. A certain sum invested on compound interest grows ₹8000 and ₹27000 in three and six years, respectively when the interest is compounded annually. What is the percentage rate of interest?

SSC CHSL 09/07/2019 (Shift-3)

- (a) 25 (b) 0.5 (c) 50 (d) 10

2. The compound interest on a certain sum of money at 21% for 2 years is ₹11602.5. Its simple interest (in ₹) at the same rate and for the same period is:

SSC CHSL 9/07/2019 (Shift-2)

- (a) 10750 (b) 16000 (c) 12500 (d) 10500

3. A certain amount invested at a certain rate, compounded annually, grows to an amount in five years, which is a factor of 1.191016 more than to what it would have grown in two years. What is the rate percentage?

SSC CHSL 5/07/2019 (Shift-1)

- (a) 5 (b) 4 (c) 6 (d) 8

4. A certain amount invested at a certain rate, compounded annually, grows to an amount in five years, which is a factor of 1.1881 more than to what it would have grown in three years. What is the rate percentage?

SSC CHSL 4/07/2019 (Shift-3)

- (a) 9 (b) 8.1 (c) 8 (d) 9.2

5. The compound interest on a certain sum for 3 years at 15% p.a., interest compounded yearly, is ₹4167. What is the simple interest on the same sum in $4\frac{4}{5}$ years at the same rate?

SSC CHSL 3/07/2019 (Shift-3)

- (a) ₹6144 (b) ₹6000 (c) ₹4800 (d) ₹5760

6. A certain sum amounts to ₹29282 in 4 years at 10% per annum, when the interest is compounded annually. What is the simple interest on the same sum for same time at the same rate?

SSC CHSL 3/07/2019 (Shift-2)

- (a) ₹8500 (b) ₹8000 (c) ₹7600 (d) ₹8400

7. A sum of ₹10000 amounts to ₹11664 in 2 years at a certain rate percent per annum, when the interest is compounded yearly. What will be the simple interest on the same sum for $5\frac{2}{5}$ years at the same rate?

SSC CHSL 3/07/2019 (Shift-1)

- (a) ₹4320 (b) ₹4160 (c) ₹3840 (d) ₹4040

8. What is the compound interest on a sum of ₹4096 at 15% p.a. for $2\frac{1}{2}$ years. If the interest is compounded 10-monthly?

SSC CHSL 2/07/2019 (Shift-3)

- (a) ₹1726 (b) ₹1736 (c) ₹1636 (d) ₹1763

9. A sum of ₹7500 amounts to ₹8748 after 2 years at a certain compound interest rate per annum. What will be the simple interest on the same sum for $4\frac{3}{5}$ years at double the earlier interest rate?

SSC CHSL 2/07/2019 (Shift-2)

- (a) ₹4140 (b) ₹5520 (c) ₹8180 (d) ₹2760

SOLUTIONS

Sol. 1. (c) :

$$3\sqrt{\frac{27000}{8000}} = \frac{3}{2} \leftarrow 1$$

x 8000 27000

After 3 years After 3 years

$$\therefore \text{Rate}\% = \frac{1}{2} \times 100 = 50\%$$

Sol. 2. (d) Trick:

$$21 + 21 + \frac{21 \times 21}{100} = 46.41\%$$

$$\text{CI} = 46.41\%$$

$$\text{So, principal} = \frac{11602.5 \times 100}{46.41} = ₹ 25000$$

Now,

$$\text{SI} = \frac{25000 \times 21 \times 2}{100} = ₹ 10500$$

Sol. 3. (c) : Let principal = P, Amount = 1.191016 P
According to the question,

$$\sqrt{\frac{1.191016p}{p}} = \frac{1.06}{100}$$

$$\therefore \text{Rate}\% = \frac{0.06}{1} \times 100 = 6\%$$

Sol. 4. (a) : Let principal = P, Amount = 1.1881 P
Difference between times = 5 - 3 = 2 years

According to the question,

$$\sqrt{\frac{1.1881p}{1.0000p}} = \frac{1.09}{1} = 0.9$$

$$\therefore \text{CI} = 0.09$$

$$\therefore \text{Rate}\% = \frac{0.09}{1} \times 100 = 9\%$$

Sol. 5. (d) Trick:

$$\frac{15}{100} = \frac{3}{20} \leftarrow + \quad \begin{array}{cc} (20)^3 & (23)^3 \\ 8000 & 12167 \end{array}$$

Int 4167

$$\therefore 4167 \text{ units} = 4167$$

$$\text{SI} = \frac{8000 \times 72}{100} = ₹ 5760$$

$$\text{Sol. 6. (b) Trick: } \frac{10}{100} = \frac{1}{10} = + (10)^4 \quad (11)^4$$

$$10000 \quad 14641$$

$$\therefore 14641 \text{ units} = 29281$$

$$\therefore 1 \text{ unit} = 2$$

$$\therefore 10000 \text{ units} = 10000 \times 2 = 20000$$

$$\therefore \text{SI} = \frac{20000 \times 40}{100} = ₹ 8000$$

$$\text{Sol. 7. (a) Trick: Rate}\% = \sqrt{\frac{11664}{10000}} = \frac{108}{100} = 8\% \text{ (2 years)}$$

$$\text{SI} = \frac{10000 \times 8 \times 27}{100 \times 5} = ₹ 4320$$

$$\text{Sol. 8. (b) Trick: Rate}\% = \frac{15 \times 10}{12} = \frac{25\%}{2} = \frac{1}{8} \leftarrow +$$

$$\text{Time} = \frac{5}{2} \times \frac{12}{10} = 3$$

$$\begin{array}{cc} (8)^3 & (9)^3 \\ 512 & 729 \end{array}$$

Int = 217

$$\therefore 512 \text{ units} = 4096$$

$$\therefore 217 \text{ units} = \frac{4096 \times 217}{512} = ₹ 1736$$

$$\text{Sol. 9. (b) Trick: } \sqrt{\frac{8748}{7500}} = \frac{27}{25} \leftarrow 2$$

$$\therefore \text{Rate}\% = \frac{2}{25} \times 100 = 8\%$$

According to the question,

$$\text{Now, Rate}\% = 2 \times 8 = 16\%$$

$$\text{SI} = \frac{7500 \times 16 \times 23}{100 \times 5} = ₹ 5520$$

EXERCISE 9C

SSC CGL & CPO Exams

1. If a sum amounts to ₹2190 in four years and ₹2409 in five years at compound interest, when the interest is compounded yearly, then the annual rate of interest is:

SSC CGL 13/06/2019 (Shift-3)

- (a) 8% (b) 10% (c) 9% (d) 11%

2. The difference between compound interest and simple interest on ₹ x at 15% per annum for 2 years is ₹9. What is the value of x?

SSC CGL 2019 (Shift-2)

- (a) 600 (b) 400 (c) 450 (d) 500

3. The difference between the compound interest and simple interest on ₹ x at 11% per annum for 2 years is ₹60.50. What is the value of x?

SSC CGL13/06/2019 (Shift-1)

- (a) 4800 (b) 4000 (c) 5000 (d) 4500

4. The difference between the compound interest and simple interest on ₹ x at 7% per annum for 2 years is ₹24.50. What is the value of x ?

SSC CGL 12/06/2019 (Shift-3)

- (a) 5400 (b) 4800 (c) 5000 (d) 6000

5. The difference between compound interest and simple interest on ₹ x at 8% per annum for 2 years is ₹48. What is the value of x ?

SSC CGL 12/06/2019 (Shift-2)

- (a) 8000 (b) 7500 (c) 7400 (d) 7800

6. The difference between the compound interest and simple interest on ₹ x at 12% per annum for 2 years is ₹43.20. What is the value of x ?

SSC CGL 12/06/2019 (Shift-1)

- (a) 2400 (b) 2800 (c) 3000 (d) 2500

7. The difference between the compound interest and simple interest on ₹ x at 12% per annum for 2 years is ₹18. What is the value of x ?

SSC CGL 11/06/2019 (Shift-3)

- (a) 1250 (b) 1280 (c) 1340 (d) 1300

8. The difference between the compound interest and simple interest on ₹ x at 7.5% per annum for 2 years is ₹45. What is the value of x ?

SSC CGL 11/06/2019 (Shift-2)

- (a) 7000 (b) 8000 (c) 9000 (d) 10000

9. The difference between the compound interest and simple interest on ₹ x at 8.5% per annum for 2 years is ₹28.90. The value of x is:

SSC CGL 11/06/2019 (Shift-1)

- (a) 3500 (b) 3800 (c) 4000 (d) 4500

10. The difference between the compound interest and simple interest on ₹ x at 9% per annum for 2 years is ₹20.25. What is the value of x ?

SSC CGL 10/06/2019 (Shift-3)

- (a) 2800 (b) 2400 (c) 2200 (d) 2500

11. What is the compound interest on a sum of ₹8100 for $1\frac{1}{4}$ years at 8% per annum, if the interest is compounded 5-monthly? (Nearest to ₹1)

SSC CGL 7/06/2019 (Shift-3)

- (a) ₹837 (b) ₹873 (c) ₹842 (d) ₹824

12. A sum amounts to ₹18600 after 3 years and to ₹27900 after 6 years, at a certain rate percent p.a., when the interest is compounded annually. The sum is:

SSC CGL 7/06/2019 (Shift-1)

- (a) ₹11800 (b) ₹12400 (c) ₹14400 (d) ₹14600

13. What is the compound interest on a sum of ₹10000 at 14% p.a. for $2\frac{5}{7}$ years where the interest is compounded yearly? (nearest to ₹1)

SSC CGL 6/06/2019 (Shift-2)

- (a) ₹ 4259 (b) ₹4296 (c) ₹4439 (d) ₹4394

SOLUTIONS

Sol. 1. (b) : Let principal be = x

$$x \begin{array}{l} \text{After 4 years} \\ \text{After 5 years} \end{array} \begin{array}{l} 2190 \\ 2409 \end{array}$$

Difference between = $2409 - 2190 = 219$ (interest)

$$\therefore \text{Rate}\% = \frac{21900}{2190} = 10\%$$

Sol. 2. (b) Trick: $CI = 15 + 15 + \frac{15 \times 15}{100}$ - Difference between CI and SI

So, $\therefore 2.25\%$ of $x = 9$

$$\therefore x = \frac{9 \times 100}{2.25} = ₹ 400$$

Sol. 3. (c) Trick: $\frac{11 \times 11}{100} = 1.21\%$ Difference between CI and SI

$\therefore 1.21\%$ of $x = 60.50$

$$\therefore x = \frac{60.50 \times 100}{1.21} = ₹ 5000$$

Sol. 4. (c) : Difference between (CI - SI) = $\frac{7 \times 7}{100} = 49\%$

$\therefore 49\%$ of $x = ₹ 24.50$

$$\therefore x = \frac{24.50 \times 100}{49} = ₹ 5000$$

Sol. 5. (b) : $CI - SI = \frac{8 \times 8}{100} = 0.64\%$

$\therefore 0.64\%$ of $x = ₹ 43.20$

$$\therefore x = \frac{4800 \times 100}{0.64} = ₹ 7500$$

Sol. 6. (c) : $CI - SI = \frac{12 \times 12}{100} = 1.44\%$

$\therefore 1.44\%$ of $x = ₹ 43 - 20$

$$\therefore x = \frac{4800 \times 100}{0.64} = ₹ 8000$$

Sol. 7. (a) : $CI - SI = \frac{12 \times 12}{100} = 1.44\%$

$\therefore 1.44\%$ of $x = ₹ 18$

$$\therefore x = \frac{18 \times 100}{1.44} = ₹ 1250$$

Sol. 8. (b) : $CI - SI = \frac{7.5 \times 7.5}{100} = 56.25\%$

$\therefore 56.25\%$ of $x = ₹ 45$

$$x = \frac{45 \times 100}{56.25} = ₹ 8000$$

Sol. 9. (c) : $CI - SI = \frac{8.5 \times 8.5}{100} = 72.25\%$

$\therefore 72.25\%$ of $x = ₹ 28.90$

$$\therefore x = \frac{28.90 \times 100}{72.25} = ₹ 4000$$

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Sol. 10. (d) : $CI - SI = \frac{9 \times 9}{100} = 0.81\%$

$\therefore 0.81\% \text{ of } x = ₹ 20.25$

$\therefore x = \frac{20.25 \times 100}{0.81} = ₹ 2500$

Sol. 11. (a) : Rate = 8% , Time = $\frac{5}{4} \times \frac{12}{5} = 3$ times

Rate = $\frac{8 \times 5}{12} = \frac{10}{3}\% = \frac{10}{300} = \frac{1}{30}$ +

$$\begin{array}{ccc} (30)^3 & & (31)^3 \\ 27000 & & 29791 \\ \uparrow & \text{---} & \uparrow \\ & \text{Intrest} = 2791 & \end{array}$$

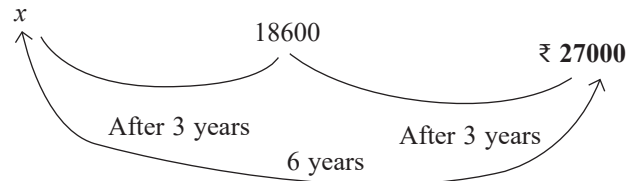
$\therefore 27000 \text{ units} = 8100$

$\therefore 1 \text{ unit} = \frac{8100}{27000} = 11$

$\therefore 2791 \text{ units} = \frac{8100}{27000} \times 2791 = ₹ 837.3$

Sol. 12. (b) :

Let principal be = x



$\Rightarrow \frac{18600}{x} = \frac{27900}{18600}$

$\Rightarrow x = \frac{18600 \times 186}{279} = ₹ 12400$

Sol. 13. (b) :

Given:

Principal = ₹ 10000

Time = $2\frac{5}{7}$ = Rate = 14%

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

$A = 10000 \left[1 + \frac{14}{100} \right]^2 \left[1 + \frac{5 \times 14}{100 \times 7} \right]$

$A = 10000 \times \frac{57}{50} \times \frac{57}{50} \times \frac{11}{10} = 14295.6$

$\therefore \text{Compound interest} = 14296 - 10000 = ₹ 4296$