

Compound Interest Questions for Competitive Exams Pdf

Question: 1

The simple interest on a certain sum of money for 3 years at 8% per annum is half the compound interest on Rs. 4000 for 2 years at 10% per annum. The sum placed on simple interest is

- (A) Rs. 1550
- (B) Rs. 1650
- (C) Rs. 1700
- (D) Rs. 1750

Ans: D

$$\begin{aligned} \text{C.I.} &= ₹ \left[4000 \times \left(1 + \frac{10}{100} \right)^2 - 4000 \right] \\ &= ₹ \left(4000 \times \frac{11}{10} \times \frac{11}{10} - 4000 \right) = ₹ 840. \\ \therefore \text{Sum} &= ₹ \left(\frac{420 \times 100}{3 \times 8} \right) = ₹ 1750. \end{aligned}$$

Question: 2

The effective annual rate of interest corresponding to a nominal rate of 6% per annum payable half yearly is

- (A) 6%
- (B) 6.07%
- (C) 6.09%
- (D) 6.10%

Ans: C

Amount of ₹ 100 for 1 year when compounded half-yearly = ₹ $\left[100 \times \left(1 + \frac{3}{100}\right)^2\right] = ₹ 106.09$.

∴ Effective rate = $(106.09 - 100)\% = 6.09\%$.

Question: 3

The difference between simple interest and compound interest on Rs. 1200 for one year at 10% per annum reckoned half yearly is

- (A) Rs. 3
- (B) Rs. 3.25
- (C) Rs. 3.75
- (D) Rs. 4

Ans: A

$$\text{S.I.} = ₹ \left(\frac{1200 \times 10 \times 1}{100} \right) = ₹ 120.$$

$$\text{C.I.} = ₹ \left[1200 \times \left(1 + \frac{5}{100} \right)^2 - 1200 \right] = ₹ 123.$$

$$\text{Difference} = ₹ (123 - 120) = ₹ 3.$$

Question: 4

What will be the compound interest accrued on an amount of Rs. 10000 % 20 p.c.p.a. in 2 years if the interest is compound half yearly?

- (A) Rs. 4600
- (B) Rs. 4641
- (C) Rs. 4680
- (D) Rs. 4820

Ans: B

$P = ₹ 10000$, $R = 20\%$ p.a. = 10% per half-year;
 $T = 2$ years = 4 half-years.

$$\begin{aligned}\text{Amount} &= ₹ \left[10000 \times \left(1 + \frac{10}{100} \right)^4 \right] \\ &= ₹ \left(10000 \times \frac{11}{10} \times \frac{11}{10} \times \frac{11}{10} \times \frac{11}{10} \right) = ₹ 14641.\end{aligned}$$

$$\therefore \text{C. I.} = ₹ (14641 - 10000) = ₹ 4641.$$

Question: 5

On a sum of money, the simple interest for 2 years is Rs. 660, while the compound interest is Rs. 696.30, the rate of interest being the same in both the cases. The rate of interest is

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

Ans: B

Difference in C.I. and S.I. for 2 years
 $= ₹ (696.30 - 660) = ₹ 36.30.$

S.I. for one year = ₹ 330.

\therefore S.I. on ₹ 330 for 1 year = ₹ 36.30.

$$\therefore \text{Rate} = \left(\frac{100 \times 36.30}{330 \times 1} \right) \% = 11\%.$$

Question: 6

A man gets a simple interest of Rs. 1000 on a certain principal at the rate of 5 p.c.p.a. in 4 years. What compound interest will the man get on twice the principal in 2 years at the same rate?

- (A) Rs. 1005
- (B) Rs. 1025

(C) Rs. 10125

(D) Rs. 11025

Ans: B

$$\text{Principal} = ₹ \left(\frac{100 \times 1000}{5 \times 4} \right) = ₹ 5000.$$

Now, $P = ₹ 10000$, $T = 2$ years, $R = 5\%$.

$$\begin{aligned} \text{Amount} &= ₹ \left[10000 \left(1 + \frac{5}{100} \right)^2 \right] \\ &= ₹ \left(10000 \times \frac{21}{20} \times \frac{21}{20} \right) = ₹ 11025. \end{aligned}$$

$$\therefore \text{C.I.} = ₹ (11025 - 10000) = ₹ 1025.$$

Question: 7

Mr Duggal invested Rs. 20000 with rate of interest @ 20 p.c.p.a. The interest was compounded half yearly for first one year and in the next year it was compounded yearly. What will be the total interest earned at the end of 2 years?

a. Rs. 8040

b. Rs. 8800

c. Rs. 9040

d. Rs. 9800 \rightarrow C

Ans:

$$\begin{aligned} \text{Amount} &= ₹ \left[20000 \left(1 + \frac{10}{100} \right)^2 \left(1 + \frac{20}{100} \right) \right] \\ &= ₹ \left(20000 \times \frac{11}{10} \times \frac{11}{10} \times \frac{6}{5} \right) = ₹ 29040. \end{aligned}$$

$$\therefore \text{C. I.} = ₹ (29040 - 20000) = ₹ 9040.$$

Question: 8

What will be the difference between the simple interest and compound interest accrued on an amount of Rs. 19200 at the end of 3 years @12 p.c.p.a?

- a. Rs. 722.6826
- b. Rs. 798.1824
- c. Rs. 802.144
- d. Rs. 862.6176 → D

Ans:

$$\text{S.I.} = ₹ \left(\frac{19200 \times 12 \times 3}{100} \right) = ₹ 6912.$$

$$\text{C.I.} = ₹ \left[19200 \times \left(1 + \frac{12}{100} \right)^3 - 19200 \right]$$

$$= ₹ \left[\left(19200 \times \frac{28}{25} \times \frac{28}{25} \times \frac{28}{25} \right) - 19200 \right]$$

$$= ₹ \left(\frac{16859136}{625} - 19200 \right)$$

$$= ₹ (26974.6176 - 19200) = ₹ 7774.6176.$$

$$\therefore \text{Difference} = ₹ (7774.6176 - 6912) = ₹ 862.6176.$$

Question: 9

At what rate of compound interest per annum will a sum of Rs. 1200 become Rs. 1348.32 in 2 years?

- a. 6%
- b. 6.5%
- c. 7%
- d. 7.5%

Ans: A

Let the rate be $R\%$ p.a. Then,

$$1200 \times \left(1 + \frac{R}{100}\right)^2 = 1348.32 \Leftrightarrow \left(1 + \frac{R}{100}\right)^2 = \frac{134832}{120000} = \frac{11236}{10000}$$

$$\left(1 + \frac{R}{100}\right)^2 = \left(\frac{106}{100}\right)^2 \text{ or } 1 + \frac{R}{100} = \frac{106}{100} \text{ or } R = 6\%.$$

Question: 10

What will be the compound interest on a sum of Rs. 25,000 after 3 years at the rate of 12 p.c.p.a?

- a. Rs. 9000.30
- b. Rs. 9720
- c. Rs. 10123.20
- d. Rs. 10483.20 \rightarrow C

Ans:

$$\text{Amount} = \text{Rs.} \left[25000 \times \left(1 + \frac{12}{100}\right)^3 \right] = \text{Rs.} \left(25000 \times \frac{28}{25} \times \frac{28}{25} \times \frac{28}{25} \right) = \text{Rs.} 35123.20.$$

$$\text{C.I.} = \text{Rs.} (35123.20 - 25000) = \text{Rs.} 10123.20.$$