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# Compound Interest Questions Quiz for CDS, CLAT, SSC and Bank Clerk Pre Exams.

## Compound Interest Quiz 5

Directions: Kindly study the following Questions carefully and choose the right answer:

1. What would be the compound interest obtained on an amount of Rs. 4,800 at the rate of 5 % p.a. after 3 years?

- A. Rs 623.5                      B. Rs 756.5                      C. Rs 817.8                      D. Rs 448.7

2. The difference between compound interest and simple interest at the same rate of interest R percent per annum on an amount of Rs. 15,000 for 2 years is Rs. 96. What is the value of R?

- A. 8%                              B. 10%                              C. 12%  
D. Can't be determined due to insufficient data

3. There is 60% increase in an amount in 6 years at simple interest. What will be the compound interest on Rs. 12000 after 3 years at the same rate of interest?

- A. Rs. 2160                      B. Rs. 3120                      C. Rs. 3972                      D. Rs. 6240

4. 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 at the rate of 10%, the effective rate interest becomes

- A. 10.25%                      B. 10.5%                      C. 10.75%                      D. 11%

5. The certain sum will amount to Rs 12,100 in 2 years at 10% per annum of compound interest, interest being compounded annually. The sum is

- A. Rs. 10,000                      B. Rs. 8,000                      C. Rs. 6,000                      D. Rs. 12,000

6. The difference between C.I. and S.I. on Rs. 6000 for 1 year at 20% per annum recorded half yearly is:

- A. 45                              B. 55                              C. 60                              D. 58

**7. Divide Rs. 2602 between X and Y so that the amount of X after 7 yr is equal to the amount of Y after 9 yr, the interest being compounded at 4% pa.**

A. Rs. 1352, Rs. 1250

B. Rs. 1252, Rs. 1350

C. Rs. 1400, Rs. 1202

D. Rs. 1052, Rs. 1500

**8. A man borrows Rs. 5100 to be paid back with compound interest at the rate of 4% pa by the end of 2 yr in two equal yearly investments. How much will each installment be?**

A. Rs. 2704

B. Rs. 2800

C. Rs. 3000

D. Rs. 2500

**9. Sushmita invests a certain sum of money for 3 years at 10% pa at simple interest rate. The SI accrued is half the CI on Rs. 10000 for 2 years at 10% pa. Find the sum placed on simple interest?**

A. Rs. 3200

B. Rs. 3500

C. Rs. 3000

D. Rs. 1050

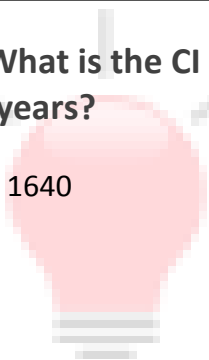
**10. What is the CI accrued on an amount of Rs. 16000 at the rate of 5% per annum at the end of 2 years?**

A. Rs. 1640

B. Rs. 1832

C. Rs. 1540

D. Rs. 1400



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**Correct Answers:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
B	A	C	A	A	C	A	A	B	A

**Explanations:**

1. P = 4800, T = 3 years, R = 5%

By the net% effect we would calculate the effective compound rate of interest for 3 years = 15.76% (Refer to sub-details)

Therefore, CI = 15.76% of 4800

$$CI = \frac{15.76 \times 4800}{100} = \text{Rs. } 756.5$$

**Sub-details:**

Calculation of effective compound rate of interest for 3 years will be as follows.

For the first 2 years, let's apply the net% effect.

Here, x = y = 5%

$$\text{Net\% effect} = x + y = \frac{xy}{100}$$

$$= 5 + 5 + \frac{5 \times 5}{100} = 10 + 0.25 = 10.25\%$$

Now let's take this 10.25% as x and 5% as y for the calculation of 3rd year.

$$= 10.25 + 5 + \frac{10.25 \times 5}{100} = 15.25 + 0.51 = 15.76\%$$

**Traditional Method:**

$$CI = 4800 \left[ \left( 1 + \frac{5}{100} \right)^3 - 1 \right]$$

$$= 4800 \left[ \frac{21 \times 21 \times 21 - 20 \times 20 \times 20}{20 \times 20 \times 20} \right]$$

$$= 4800 \times \left( \frac{9261 - 8000}{20 \times 20 \times 20} \right) \Rightarrow 4800 \times \frac{1261}{8000} = \text{Rs. } 756.6.$$

Hence, option B is correct.

**2. Smart Approach:**

To solve this question, we can apply a short trick approach

$$\text{Sum} = \frac{\text{Difference} \times 100^2}{r^2}$$

Given,

Sum (Amount) = 15000, Difference = 96,  $r = ?$

By the short trick approach, we get

$$15000 = \frac{96 \times 100^2}{r^2} \Rightarrow r^2 = \frac{96 \times 100^2}{15000} \Rightarrow r^2 = 64 \Rightarrow r = 8\%$$

**Traditional Approach:**

As per the information, we get the eqn.

CI for 2 years – SI for 2 years = 96

$$\left[15000 \times \left(1 + \frac{R}{100}\right)^2 - 15000\right] - \left(\frac{15000 \times R \times 2}{100}\right) = 96$$

$$\Rightarrow 15000 \left[\left(1 + \frac{R}{100}\right)^2 - 1 - \frac{2R}{100}\right] = 96$$

$$\Rightarrow 15000 \left[\frac{(100 + R^2) - 10000 - 200R}{10000}\right] = 96$$

$$\Rightarrow R^2 = \frac{96 \times 2}{3} = 64 \Rightarrow R = 8.$$

∴ Rate = 8%

Hence, option A is correct.

**3.** Since increase in interest in 6 years = 60%

Therefore, increase in interest in 1 year = 10% (Rate of interest)

Now,  $P = 12000$ ,  $T = 3$  years &  $R = 10\%$  p.a.

By the net% effect we would calculate the effective compound rate of interest for 3 years = 33.1% (Refer to sub-details)

Therefore, CI = 33.1% of 12000

$$CI = \frac{33.1 \times 12000}{100} = \text{Rs. } 3972.$$

**Sub-details:**

Calculation of effective compound rate of interest for 3 years will be as follows.

For the first two years, let's apply the net% effect.

Here,  $x = y = 10\%$

$$\text{Net\% effect} = x + y = \frac{xy}{100}$$

$$= 10 + 10 + \frac{10 \times 10}{100} = 21\%$$

Now let's take this 21% as  $x$  and 10% as  $y$  for the calculation of 3rd year.

$$= 21 + 10 + \frac{21 \times 10}{100} = 33.1\%$$

Hence, option C is correct.

**4.** Yearly rate of interest = 10%

Rate of interest charged on half yearly basis = 5%

It's given that the financier charges interest on half yearly basis. Hence, he actually charges Compound Interest and not Simple Interest.

Therefore, applying the net% effect formula for effective rate of compound interest for 2 half years (1 year = 2 half years), we get

$$\text{Net\% effect} = x + y + \frac{xy}{100}$$

$$x = y = 5\%$$

$$\text{Net\% effect} = 5 + 5 + \frac{5 \times 5}{100} = 10 + 0.25 = 10.25\%$$

Hence, option A is correct.

**5.** To solve this question, we can apply a net% effect formula

$$\text{Net\% effect} = x + y + \frac{xy}{100}\%$$

$$x = y = 10\%$$

$$= 10 + 10 + \frac{10 \times 10}{100} = 21\%$$

Now, Amount (P + CI) = (100 + 21)% = 121%  $\equiv$  Rs. 12100

$\therefore$  Principal = 100%  $\equiv$  Rs. x

By the cross multiplication, we get

$$x = \frac{12100 \times 100}{121} = \text{Rs. } 10000.$$

**Traditional Method:**

Given,

Amount = 12,100;  $r = 10\%$ ,  $t = 2$  yrs

$$\text{Amount} = P \left[ 1 + \frac{r}{100} \right]^t$$

$$12100 = P \left[ 1 + \frac{10}{100} \right]^2$$

$$\Rightarrow 12100 = P \left[ \frac{11}{10} \right]^2 \Rightarrow 12100 = P \times \frac{11}{10} \times \frac{11}{10}$$

$$\Rightarrow P = \text{Rs. } 10,000.$$

Hence, option A is correct.

**6. Method I :**

To solve this question, we can apply a short trick approach

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

Sum = Rs. 6000,  $r = \frac{20}{2} = 10\%$  (half yearly rate of interest), Difference = ?

By the short trick approach, we get

$$\Rightarrow 6000 = \frac{\text{Difference} \times (100)^2}{10^2}$$

$$\Rightarrow \text{Difference} = \frac{6000 \times 10 \times 10}{100 \times 100} = \text{Rs. } 60.$$

**Method II:**

We can solve it by applying the net% effect formula,

Rate % of SI for 1 yr (2 half years) at 10% pa (rate will be halved here) =  $10 \times 2 = 20\%$

Rate % of CI for 1 yr (2 half years) at 10% pa (rate will be halved here as well),

$$= 10 + 10 + \frac{10 \times 10}{100} = 21\%$$

% rate difference of CI and SI =  $21\% - 20\% = 1\%$

Now, 1% of 6,000 = Rs. 60.

**Traditional Method:**

S.I. for 1 year (calculated on half yearly basis)

$$= \frac{6000 \times 10 \times 2}{100} = 1200.$$

C.I. for 1 year (calculated on half yearly basis)

$$= 6000 \left(1 + \frac{10}{100}\right)^2 - 6000.$$

$$\Rightarrow 6000 \times \frac{121}{100} - 6000$$

$$\Rightarrow 7260 - 6000 = 1260.$$

Difference =  $1260 - 1200 = \text{Rs. } 60.$

Hence, option C is correct.

**7.** Let the first part = x.

Then, Second part =  $(2602 - x)$

According to the question,

$$x \left(1 + \frac{4}{100}\right)^7 = (2602 - x) \left(1 + \frac{4}{100}\right)^9$$

$$\Rightarrow \frac{x}{(2602 - x)} = \frac{\left(1 + \frac{4}{100}\right)^9}{\left(1 + \frac{4}{100}\right)^7}$$

$$\Rightarrow \frac{x}{(2602-x)} = \left(1 + \frac{4}{100}\right)^2$$

$$\Rightarrow \frac{x}{(2602-x)} = \left(\frac{26}{25}\right)^2$$

$$\Rightarrow 625x = (2602 - x) 676$$

$$\Rightarrow 625x = 2602 \times 676 - 676x$$

$$\Rightarrow 1301x = 2602 \times 676$$

$$\Rightarrow x = 2 \times 676 = 1352.$$

Hence, option A is correct.

**8.** Let the installments be x. Then,

According to the question,

$$\Rightarrow \frac{x}{\left(1 + \frac{4}{100}\right)} + \frac{x}{\left(1 + \frac{4}{100}\right)^2} = 5100$$

$$\text{From formula, } A = P\left(1 + \frac{R}{100}\right)^n \Rightarrow P = \frac{A}{\left(1 + \frac{R}{100}\right)^n}$$

$$\Rightarrow \frac{x}{\left(\frac{26}{25}\right)} + \frac{x}{\left(\frac{26}{25}\right)^2} = 5100$$

$$\Rightarrow \frac{25x}{26} + \frac{625x}{676} = 5100$$

$$\Rightarrow \frac{25x \times 26 + 625x}{676} = 5100$$

$$\Rightarrow 650x + 625x = 5100 \times 676$$

$$\Rightarrow x = \frac{5100 \times 676}{1275} = \text{Rs. } 2704$$

Hence, option A is correct.

**9.** Applying the net% effect formula to calculate the net CI rate for 2 years, we get

$$= 10 + 10 + \frac{10 \times 10}{100} = 21\%$$

Now, 21% of 10000 = 2100

$$\text{Sum of SI is half of CI} = \frac{2100}{2} = 1050$$



As we know,  $\text{Sum} = \frac{\text{SI} \times 100}{\text{RT}}$

$$\therefore \text{Sum} = \frac{1050 \times 100}{3 \times 10} = \text{Rs. } 3500$$

Hence, option B is correct.

**10.** To solve this question, we can apply the net% effect formula

$$\text{Net\% effect} = x + y + \frac{xy}{100}\%$$

Here,  $x = y = 5\%$  (because rate of interest is same for both the years)

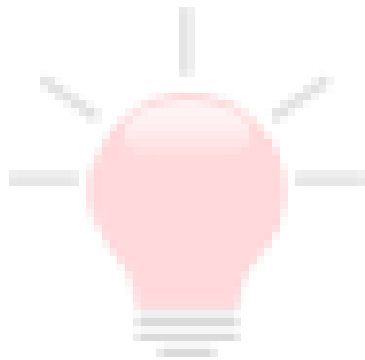
By the net% effect, we get effective rate of interest

$$= 5 + 5 + \frac{5 \times 5}{100}\% = 10.25\%$$

Therefore, 10.25% of 16000

$$= 10.25 \times 160 = \text{Rs. } 1640$$

Hence, option A is correct.



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