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Compound Interest Questions Quiz for SBI Clerk Pre, IBPS Clerk Pre and IBPS RRB Exams.

Compound Interest Quiz 10

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

1. 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

2. A certain amount of money is lent out at compound interest at the rate of 20% per annum for two years, compounded annually. It would give Rs. 482 more if the amount is compounded half yearly. Find the principle.

- A. Rs. 30000 B. Rs. 10000 C. Rs. 15000 D. Rs. 25000 E. None of these

3. A man gave 50% of his savings of Rs 67,280 to his wife and divided the remaining sum between his two sons A and B of 14 and 12 years of age respectively. He divided it in such a way that each of his sons, when they attain the age of 18 years, would receive the same amount at 5% compound interest per annum. The share of B was

- A. 16500 B. 15000 C. 15020 D. 16000 E. None of these

4. Aditya and Bhushan invested 10000 each in scheme A and scheme B respectively for 3 years. Scheme A offers Simple interest @ 12% per annum and scheme B offers compound interest @ 10%. After 3 years, who will have larger amount and by how much?

- A. Aditya, 280 B. Bhushan, 280 C. Adiya, 290 D. Bhushan, 290 E. None of these

5. 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

6. Amit deposited some money in a bank, which pays 15% interest per annum compounded yearly. If the bank provides simple interest instead of compound interest, he receives Rs. 2400 after 2 years. Find the total Amount that he received after 2 years.

- A. Rs. 10960 B. Rs. 9500 C. Rs. 10500 D. Can't be determined E. None of these

7. Heeralal invests some amount every year. The annual interest rate earned on his investment gets increased by 10%. If the yearly interest rate earned on his investment this year was 11%, what was the yearly rate of interest previous year?

- A. 1% B. 1.1% C. 10.8% D. 10% E. None of these

8. Rs. 160000 is divided into two equal parts. One part is invested in a scheme which gives 12% interest compounded annually for two years. The other part is invested in a scheme offering simple interest of 13% for 2 years. What is the difference between the interest earned on the two schemes?

- A. Rs. 512 B. Rs. 426 C. Rs. 448 D. Rs. 568 E. None of these

9. If the compound interest on certain sum at 4% for 2 years is Rs. 2448. Find the simple interest on the same sum at the same rate for the same period.

- A. 2500 B. 2400 C. 2436 D. 2420 E. None of these

10. Saahil invested one half of his savings in a Life Insurance Policy that paid simple interest for 2 years and received Rs. 550 as interest. He invested the remaining in another Life Insurance Policy that paid compound interest, interest being compounded annually, for 2 years at the same rate of interest and received Rs. 605 as interest. What was the value of his total savings before investing in these two policies?

- A. Rs. 3,050 B. Rs. 3,250 C. Rs. 2,680 D. Rs. 2,750 E. None of these

Correct Answers:

1	2	3	4	5	6	7	8	9	10
D	E	D	C	B	E	D	C	B	D

Explanations:

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

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

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

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

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

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

Hence, option D is correct.

2. **Approach I:** To solve this question, we can apply the net % effect formula

$$x + y + \frac{xy}{100}\%$$

$$\text{Compounded annually at rate } 20\% \text{ per annum for 2 years, we get} = 20 + 20 + \frac{20 \times 20}{100} = 44\%$$

$$\text{Similarly, compounded half yearly at rate } 10\%, \text{ we get} = 10 + 10 + \frac{10 \times 10}{100} = 21\%$$

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

$$\text{And, } 33.1 + 10 + \frac{33.1 \times 10}{100} = 46.41\%$$

Now as per the question,

$$\text{Difference between compound interest yearly and half yearly} = 46.41 - 44 = 2.41\%$$

Given, $2.41\% \equiv 482$

$$100\% \equiv x$$

$$\Rightarrow x = \frac{482 \times 100}{2.41} = 20,000$$

Approach II: When compounded annually, the amount received at the end of the period is

$$A = P \left[1 + \frac{r}{100} \right]^n$$

When compounded half yearly, the amount received at the end of the period is

$$A = P \left[1 + \frac{r/2}{100} \right]^{2n}$$

Let the principle be P.

Interest on this amount when compounded annually at the rate of 20% per annum = $P [(1.20)^2 - 1]$

Interest on this amount when compounded half yearly = $P [(1.10)^4 - 1]$

The difference between the two is Rs. 482

$$\therefore P [(1.10)^4 - 1] - P [(1.20)^2 - 1] = 482$$

$$\therefore P [1.4641 - 1.44] = 482$$

$$\therefore P = \text{Rs. } 20,000$$

Hence, option E is correct.

3. Total Income = 67,280

After giving 50% salary to his wife the man is left with an amount = 33,640

Let's assume the man gave Rs. x to A. Therefore B will get Rs. (33640 - x).

33640
14 years A \swarrow \searrow 12 years B
x (33640 - x)

Now, as per the question A & B will be getting an equal amount with CI at 5% rate per year at the 18th year.

$$\Rightarrow x \left(1 + \frac{5}{100} \right)^4 = (33640 - x) \left[1 + \frac{5}{100} \right]^6$$

$$\Rightarrow \frac{x}{(33640 - x)} = \frac{\left(1 + \frac{5}{100} \right)^6}{\left(1 + \frac{5}{100} \right)^4}$$

$$\Rightarrow \frac{x}{(33640 - x)} = \left(\frac{21}{20} \times \frac{21}{20} \right)$$

$$\Rightarrow 400x = 33640 \times 441 - 441x$$

$$\Rightarrow 841x = 33640 \times 441$$

$$x = \frac{33640 \times 441}{841} = 40 \times 441 = 17640/-$$

Therefore, at the time of division of money, B would have got a sum = (33640 - 17640) = Rs. 16000

Hence, option D is correct.

4. Let's first calculate the total rate % that Aditya will have after 3 years:

As per the question Aditya invested at rate of 12% pa simple interest

So, for 3 years tenure he will get = $12 \times 3 = 36\%$

And the amount that Bhushan invested at rate of 10% pa compound interest

By net% effect formula, we can calculate the total percentage for 3 years tenure = 33.1% **(sub details)**

So, the difference between SI and CI = $36\% - 33.1\% = 2.9\%$ (SI is more)

Here Aditya will get, 2.9% of 10000 = 290

So Aditya will have Rs. 290 more than Bhushan.

Sub-details:-

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

For the first 2 years: Here, $x = y = 10\%$

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

And for the next year: Here $x = 21\%$ and $y = 10\%$

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

Hence, option C is correct.

5. Let the each instalment be x.

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

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

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

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

$$\Rightarrow 3320x = 9960 \times 1849 \Rightarrow x = \text{Rs. } 5547$$

Hence, option B is correct.

6.

$$S.I = \frac{P \times R \times T}{100}$$

$$2400 = \frac{P \times 15 \times 2}{100}$$

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

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

$$A = 8000 \left(1 + \frac{15}{100}\right)^2$$

$$A = 8000 \left(\frac{115}{100} \times \frac{15}{100}\right)$$

$$A = \text{Rs. } 10580$$

Hence, option E is correct.

7. If x is the annual interest rate last year, then the annual interest rate this year is 10% greater than x , or $1.1x$. It is given that $1.1x = 11\%$

$$\text{Therefore, } x = \frac{11\%}{1.1} = 10\%$$

(Note that if the given information had been that the investment increased by 10% points, then the equation would have been $x + 10\% = 11\%$)

Hence, option D is correct.

8. Method I: The amount of 160000 is divided into two equal parts – 80000

$$\text{Interest earned in the first scheme} = 80000 \times \frac{112}{100} \times \frac{112}{100}$$

$$= 100352 - 80000 = 20352$$

Interest earned in the second scheme

$$= \frac{80000 \times 13 \times 2}{100} = 20800$$

$$\text{Difference} = 20800 - 20352 = \text{Rs. } 448$$

Method II:

The amount of 160000 is divided into two equal parts – 80000

When Rs. 80000 is compounded annually for 2 years at the rate of 12% interest. the effective rate of interest for two years becomes 25.44% (Kindly refer to Sub-details).

And that man invests half the part in another scheme offering 13% per annum at simple interest for 2 years, the interest become 26%.

Rate per cent difference = 26% – 25.44 = 0.56%

Required difference = 0.56% of 80000 = 448 -----

Sub details:

We can calculate the effective rate of interest by applying the net% effect formula

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

Here, x = 12% and y = 12%

So, the effective rate of interest for two years will be as follows:

$$= 12 + 12 + \frac{12 \times 12}{100} = 25.44\%$$

Hence, option C is correct.

9. Method I:

Let the sum be Rs. x, then,

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

$$\text{So, } \frac{51x}{625} = 2448 \text{ or } x = \frac{2448 \times 625}{51} = 30000.$$

Thus, the sum is Rs. 30000.

$$\text{So, S.I} = \text{Rs} \left(30000 \times 4 \times 2 \times \frac{1}{100}\right) = \text{Rs} 2400.$$

Hence, option B is correct.

10. Saahil received an extra amount of Rs. 55 (Rs.605 – Rs.550) on his compound interest paying the policy as the interest that he received in the first year also earned interest in the second year. Interest for the first year is the same for S.I. and C.I.

$$\text{Interest for first year} = \frac{550}{2} = \text{Rs. } 275$$

$$\therefore \text{Rate of interest} = \frac{55}{275} \times 100 = 20\%$$

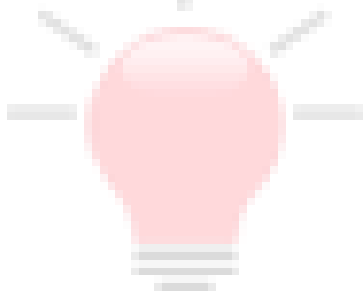
Consider one year. Let the amount invested at S.I. be Rs. x

$$\therefore 275 = \frac{x \times 20 \times 1}{100}$$

$$\therefore x = \text{Rs. } 1,375$$

$$\therefore \text{Total investment} = 2x = \text{Rs. } 2,750$$

Hence, option D is correct.



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