



## SSC CGL Compound Interest Questions PDF

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## Instructions

For the following questions answer them individually

### Question 1

In how many years will a sum of Rs. 800 at 10% per annum compound interest, compounded semiannually becomes Rs. 926.10 ?

- A  $1\frac{1}{2}$
- B  $1\frac{2}{3}$
- C  $2\frac{1}{3}$
- D  $2\frac{1}{2}$

**Answer:** A

### Explanation:

When we are compounding it semiannually its rate becomes 5% and number of years will  $2n$

so for compound interest:

$$926.10 = 800 \times \left(1 + \frac{10}{100}\right)^{2n}$$

solve for  $n$ .

### Question 2

A sum of Rs. 12,000, deposited at compound interest becomes double after 5 years. How much will it be after 20 years ?

- A Rs. 1,44,000
- B Rs. 1,20,000
- C Rs. 1,50,000
- D Rs. 1,92,000

**Answer:** D

### Explanation:

For compound interest  $A = p\left(1 + \frac{r}{100}\right)^n$  where  $p$  is principal amount,  $r$  is rate and  $t$  is time

after 5 years it gets doubled

hence putting the values we will get  $\left(1 + \frac{r}{100}\right)^5 = 2$

now after 20 years total amount will be  $p\left(1 + \frac{r}{100}\right)^{20} = 16p = 16 \times 12000 = 192000$

### Question 3

The difference between simple interest and compound interest of a certain sum of money at 20% per annum for 2 years is Rs. 48. Then the sum is

- A Rs. 1,000
- B Rs. 1,200
- C Rs. 1,500
- D Rs. 2,000

**Answer: B**

**Explanation:**

Difference between simple interest and compound interest for two years will be

$$48 = \frac{2pr}{100} - \left( \frac{2pr}{100} + \frac{pr^2}{10^4} \right) \text{ (where } p \text{ is principal amount and } r \text{ is rate per annum)}$$

Putting  $r=20\%$  and solving above equation for  $p$ , we will get  $p = 1200$  rs.

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### Question 4

A sum of Rs. 12,000 deposited at compound interest becomes double after 5 years. After 20 years, it will become

- A Rs. 48,000
- B Rs. 96,000
- C Rs. 1,90,000
- D Rs. 1,92,000

**Answer: D**

**Explanation:**

As we know  $P\left(1 + \frac{r}{100}\right)^t$  is amount of compound interest where  $r$  is rate,  $P$  is principal amount and  $t$  is time.

$$\text{So } 12000\left(1 + \frac{r}{100}\right)^5 = 2 \times 12000$$

$$\text{or } \left(1 + \frac{r}{100}\right) = 2^{\left(\frac{1}{5}\right)} \quad \text{eq(1)}$$

$$\text{Now after 20 years compound interest will be} = 12000\left(1 + \frac{r}{100}\right)^{20}$$

$$\text{or } 12000\left(2^{\left(\frac{1}{5}\right)}\right)^{20} \quad \text{(from eq.(1))}$$

$$\text{or } 12000 \times 16 = 192000$$

### Question 5

The difference between the compound interest and simple interest for the amount Rs. 5,000 in 2 years is Rs.32. The rate of interest is

- A 5%

B 8%

C 10%

D 12%

**Answer: B**

**Explanation:**

Difference between compound interest and simple interest for 2 years will be  
 $= (P((1 + \frac{r}{100})^2) - P) - 2P\frac{r}{100} = 32$  (where P is principal amount 5000 and r is rate )  
after solving above equation we will get  $r = 8\%$

**Question 6**

**There is 100% increase to an amount in 8 years, at simple interest. Find the compound interest of Rs. 8000 after 2 years at the same rate of interest.**

A Rs. 2500

B Rs. 2000

C Rs. 2250

D Rs. 2125

**Answer: D**

**Explanation:**

$$I = PTR/100$$

there is 100% increase in amount means, interest = principle.

given,  $T = 8$  yrs.

$$I = P$$

$$P = P*8*R/100$$

$$R = 12.5\%$$

compound interest of 8000/- at 12.5% for 2 years is

$$CI = \text{total amount} - 8000/-$$

$$= P(1 + R/100)^n - 8000/-$$

$$= 8000(1 + 12.5/100)^2 - 8000/-$$

$$= 10125 - 8000$$

$$= 2125/-$$

so the answer is option D.

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### Question 7

The compound interest generated on a sum of Rs 5000, in two years at 5% per annum, the interest is being compounded half yearly is.

- A Rs 557
- B Rs 489
- C Rs 519
- D Rs 362

**Answer:** C

### Explanation:

The formula to calculate compound interest is,

$$A = P\left(1 + \frac{r}{n}\right)^{nt} \text{ where,}$$

A = Amount

P = Principal

r = rate of interest

n = number of times compounded in a year

t = time period in years

Applying the above formula we get,

Compound interest generated after two years is

= Amount - Principal

$$= 5000\left(1 + \frac{0.05}{2}\right)^{(2*2)} - 5000 = 1.0509 * 5000 - 5000 = 5519 - 5000 = \text{Rs } 519$$

Hence Option C.

### Question 8

The difference between simple interest and compound interest (at the same rate of interest) for two years on a sum of Rs. 25000 is Rs. 1000. What is the common rate of interest?

- A 10%
- B 20%
- C 30%
- D 40%

**Answer: B**

**Explanation:**

Simple interest for 2 years on Rs. 25000 at rate 'r' =  $\frac{25000 \times 2 \times r}{100} = 500r$

Simple interest for each year =  $250r$

Compound interest for 2 years on Rs. 25000 at rate 'r' =

Simple interest for 1st year + Simple interest for 2nd year

Simple interest for 1st year =  $250r$

Simple interest for 2nd year =  $\frac{(25000 + 250r) \times r}{100} = 250r + 2.5r^2$

The difference between interest is given as Rs. 1000

So we get,

$$250 + 2.5r^2 + 250r - 500r = 1000$$

$$2.5r^2 = 1000$$

$$r^2 = 400$$

$$r = 20\%$$

Thus, Option B.

**Question 9**

Sohan deposited Rs 1 lac in a bank at a certain simple interest rate such that the amount got doubled after 5 years. If Sohan had deposited the same amount at the same interest rate compounded annually, the amount after 2 years would have been

A Rs 1.44 lacs

B Rs 1.21 lacs

C Rs 1.25 lacs

D Rs 1.69 lacs

**Answer: A**

**Explanation:**

If the amount gets doubled after 5 years, the simple interest accrued will be equal to P (principal amount).

$$\Rightarrow P = \frac{P \times r \times 5}{100} \Rightarrow r = 20\%$$

So, the amount after 2 years under compound interest will be

$$1 \left(1 + \frac{20}{100}\right)^2 = 1(1.2)^2 = 1.44 \text{ lacs.}$$

Thus, A is the correct answer.

## SSC CHSL Previous Papers (DOWNLOAD PDF)

**Question 10**

A certain sum of money will amount to 24200 in 2 years at 10% per annum compounded annually. What will this sum amount to if it is invested at 8% per annum simple interest for 3 years?

- A 25000
- B 24800
- C 24200
- D 24000

**Answer: B**

**Explanation:**

We know that the formula for compound interest is given by

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

Here  $A = 24200$ ,  $n = 2$  and  $r = 10$ , so on putting these values in the equation, we get

$$24200 = P\left(1 + \frac{10}{100}\right)^2$$

$$\Rightarrow P = 24200/1.21 = 20,000$$

If it is invested at 8% per annum simple interest for 3 years, the interest earned would be

$$I = (P \cdot R \cdot T)/100 = 20000 \cdot 3 \cdot 8/100 = 4800$$

Hence, the amount will be  $20,000 + 4800 = 24800$

**Question 11**

**What is the difference between simple interest and compound interest (at the same rate of interest) for two years on a sum of Rs. 20000? The common rate of interest is 10%.**

- A Rs. 200
- B Rs. 400
- C Rs. 600
- D Rs. 800

**Answer: A**

**Explanation:**

Simple interest for 2 years on Rs. 20000 at rate 10% =  $\frac{20000 \cdot 2 \cdot 10}{100} = 4000$  rupees

Compound interest for 2 years on Rs. 20000 at rate 10% =

Simple interest for 1st year + Simple interest for 2nd year

Simple interest for 1st year = 2000 rupees

Principal for the second year will be  $20000 + 2000 = \text{Rs. } 22000$

Simple interest for 2nd year =  $\frac{(22000) \cdot 10}{100} = 2200$  rupees

Total simple interest = Rs. 4000

Total compound interest = Rs. 2000 + Rs. 2200 = Rs. 4200

The difference is Rs. 200

Thus, Option A.

### Question 12

The interest accrued when a sum of Rs 1,20,000 is deposited in a bank at an interest of 10% compounded annually for 4 years is X. Similarly, the interest accrued when a sum of Rs 1,20,000 is deposited in a bank at an interest rate of 'r' compounded annually for 2 years is Y. For what value of 'r' will X be equal to Y?

- A 20%
- B 24%
- C 21%
- D 30%

**Answer: C**

#### Explanation:

We know that in compound interest, amount =  $P(1 + \frac{r}{100})^n$

Where P = principal, r = rate of interest, and n = time period

The amount after 4 years in the first case will be-

$$A_1 = 120000(1.1)^4$$

$$\Rightarrow \text{Interest} = 120000(1.1)^4 - 120000 = 120000[(1.1)^4 - 1]$$

Similarly, in the second case,

$$A_2 = 120000(1 + \frac{r}{100})^2$$

$$\text{So, interest} = 120000[(1 + \frac{r}{100})^2 - 1]$$

$$\Rightarrow 120000[(1 + \frac{r}{100})^2 - 1] = 120000[(1.1)^4 - 1]$$

$$\Rightarrow (1.1)^4 = (1 + \frac{r}{100})^2$$

$$\Rightarrow r/100 = 1.21 - 1 = .21$$

Thus, C is the correct answer.

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### Question 13

If the difference between simple interest and compound interest for two years on a sum of Rs. 50000 is Rs. 12500 when the rate of interest is the same, what is the common rate of interest?

- A 40%
- B 50%
- C 45%
- D 35%

**Answer: B**

#### Explanation:



Simple interest for 2 years on Rs. 50000 at rate 'r' =  $\frac{50000 \times 2 \times r}{100} = 1000r$

Simple interest for each year =  $500r$

Compound interest for 2 years on Rs. 50000 at rate 'r' = Simple interest for 1st year + Simple interest for 2nd year

Simple interest for 2nd year = Simple interest for 1st year + simple interest on interest of first year  
=  $(500r) + (500r) + 500r\left(\frac{r}{100}\right) = 1000r + 5r^2$

Difference between the simple and the compound interest =  $1000r + 5r^2 - 1000r = 5r^2$

$$5r^2 = 12500$$

$$r = 50\%$$

Hence, Option B.

#### Question 14

Mr. Sharma invested a sum of money in a bank account at an interest rate of 10% compounded annually which yielded him an interest of Rs 3780 after 2 years. If Mr. Sharma invested the same amount of money at simple interest for double time period but half the interest rate, the interest accrued would be

A Rs 3200

B Rs 2700

C Rs 3600

D Rs 4800

Answer: C

#### Explanation:

Let the principal amount be P.

So, amount after 2 years of compound interest is  $P\left(1 + \frac{r}{100}\right)^n = P(1.1)^2 = 1.21P$

So, the interest is  $0.21P = 3780$

$$\Rightarrow P = 18000$$

Now, time period for SI = 4 years and Interest = 5%

$$\Rightarrow \text{SI} = 18000 \times 0.05 \times 4 = 3600$$

#### Question 15

A sum of money is invested for 2 years in a bank which pays a simple interest of 8% pa. If the same money had been invested in another bank which was paying a compound interest of 8% pa, the returns would have differed by Rs 80. What is the sum which is deposited?

A 10000

B 12500

C 15000

D 20000

Answer: B

**Explanation:**

Let the amount which has been invested be P. Then the simple interest which will be earned will be given by  
 $I = P \times 8 \times 2 / 100 = .16P$

We know that the formula for compound interest is given by

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

$$\text{So interest would be } P \left( 1 + \frac{8}{100} \right)^2 - P = .1664P$$

We have been given that

$$(.1664 - .16)P = 80$$

$$\Rightarrow P = 12500$$

Thus, option B is the correct answer.

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**Question 16**

At what rate of compound interest per annum will a sum of Rs 10000 become Rs 12321 in 2 years?

- A 22 percent
- B 11 percent
- C 7 percent
- D 15 percent

**Answer: B**

**Explanation:**

Let rate of interest =  $r\%$

Sum under compound interest = Rs. 10,000 and time period = 2 years

$$\Rightarrow \text{Amount} = P \left( 1 + \frac{R}{100} \right)^T = 12,321$$

$$\Rightarrow 10,000 \left( 1 + \frac{r}{100} \right)^2 = 12,321$$

$$\Rightarrow \left( 1 + \frac{r}{100} \right)^2 = \frac{12321}{10000} = 1.2321$$

$$\Rightarrow 1 + \frac{r}{100} = \sqrt{1.2321} = 1.11$$

$$\Rightarrow \frac{r}{100} = 1.11 - 1 = 0.11$$

$$\Rightarrow r = 0.11 \times 100 = 11\%$$

$\Rightarrow$  Ans - (B)

**Question 17**

At what rate of compound interest per annum will a sum of Rs 20000 become Rs 23328 in 2 years?

- A 8 percent

- B 16 percent
- C 24 percent
- D 12 percent

**Answer: A**

**Explanation:**

Let rate of interest =  $r\%$  and time period = 2 years

Principal = Rs. 20,000 and Amount = Rs. 23,328

Amount after compound interest =  $P(1 + \frac{R}{100})^T$

$$\Rightarrow 20,000(1 + \frac{r}{100})^2 = 23328$$

$$\Rightarrow (1 + \frac{r}{100})^2 = \frac{23328}{20000} = 1.1664$$

$$\Rightarrow (1 + \frac{r}{100}) = \sqrt{1.1664} = 1.08$$

$$\Rightarrow \frac{r}{100} = 1.08 - 1 = 0.08$$

$$\Rightarrow r = 0.08 \times 100 = 8\%$$

$\Rightarrow$  Ans - (A)

**Question 18**

If the amount received at the end of 2nd and 3rd year at Compound Interest on a certain Principal is Rs

- A 4 percent
- B 8 percent
- C 16 percent
- D 13 percent

**Answer: B**

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**Question 19**

The effective annual rate of interest corresponding to a nominal rate of 7% per annum payable halfyearly is

- A 14 percent
- B 14.25 percent
- C 7 percent

D 7.12 percent

**Answer:** D

**Explanation:**

Let sum be = Rs.  $100x$

Rate of interest = 7% under compound interest half yearly

$$\text{Amount after 1 year} = P\left(1 + \frac{R}{2 \times 100}\right)^{2 \times T}$$

$$= 100x\left(1 + \frac{7}{200}\right)^{2 \times 1}$$

$$= 100x\left(\frac{207}{200}\right)^2 = \frac{207 \times 207 \times x}{400}$$

$$= \text{Rs. } 107.12x$$

$$\Rightarrow \text{Compound Interest} = \text{Rs. } (107.12x - 100x) = \text{Rs. } 7.12x$$

$$\therefore \text{Effective rate of interest} = \frac{7.12x}{100x} \times 100$$

$$= 7.12\%$$

**Question 20**

Sumit invested a sum of money in a bank at a certain simple interest rate. After 5 years, the amount got doubled. If he had invested the same amount, at the same rate compounded annually, the amount would have doubled

A During the second year

B During the third year

C During the fourth year

D During the fifth year

**Answer:** C

**Explanation:**

The amount got doubled after 5 years.

So, interest accrued in 5 years would have been P. (P is the principal amount.)

$$\Rightarrow P = P \times r \times 5/100$$

$$\Rightarrow r = 20\%$$

In compound interest, amount at any time is given by  $P\left(1 + \frac{r}{100}\right)^n$

We want to find at what 'n' does this amount becomes 2P.

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

$$\Rightarrow 2 = (1.2)^n$$

$$\text{At } n = 3, 1.2^n = 1.728 \text{ and at } n = 4, 1.2^n = 2.0736$$

So, the amount must have got doubled in the 4th year.

### Question 21

A bank offers 12% compound interest on a sum of Rs. 10,000 compounded every quarter. What will be the approximate interest earned at the end of 1 year?

- A Rs 1055
- B Rs 1155
- C Rs 1255
- D Rs 1355

**Answer:** C

#### **Explanation:**

If the rate of interest is 12% per annum, the corresponding rate for 3 months is  $12\%/4 = 3\%$  per quarter.

So, the amount at the end of the year =  $10,000 * (1 + \frac{3}{100})^4 = \text{Rs } 11255.09$

Hence the interest earned = Amount - Principal =  $11255.09 - 10000 = \text{Rs } 1255.09$

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### Question 22

The compound interest on a certain sum of money for 2 years at 5% per annum is 410. The simple interest on the same sum at the same rate and for the same time is

- A 400
- B 300
- C 350
- D 405

**Answer:** A

#### **Explanation:**

we know that :

1. For first year , compound interest and simple interest is same if the principal amount and rate of interest is same in both cases.

2. From 2nd year onwards ,the compound interest is normal interest plus the interest on accumulated amount due to interest until last cycle.

3. Every year simple interest remains same if Rate of Interest and principal amount remains same .

Let the compound interest for 1st year be Rs y

For two years ,CI = Rs 410

$$y + y + \frac{5}{100}y = 410$$

$$\frac{41y}{20} = 410$$

$$y = 200$$

So for two years , Simple Interest =  $200 + 200 = \text{Rs } 400$

### Question 23

The compound interest on =1,800 at 10% per annum for a certain period of time is 378. Find the time in years.

- A 2.0 years
- B 2.8 years
- C 3.0 years
- D 2.5 year

**Answer: A**

### Explanation:

Principal Amount (P) = Rs 1800

Rate of Interest = 10%

Compound Interest = Rs 378

Let the time period be T

So

$$C.I = P\left(1 + \frac{R}{100}\right)^T - P$$

$$378 = 1800\left(1 + \frac{10}{100}\right)^T - 1800$$

$$T = 2 \text{ years}$$

### Question 24

The time in which 80,000 amounts to 92,610 at 10% p.a. at compound interest, interest being compounded semi annually is :

- A 1.5 years
- B 2 years
- C 2.5 years
- D 3 years

**Answer: A**

**Explanation:**

Given that Rs 80000 becomes Rs 92610 at 10% per annum .

semi-annual Rate become =  $\frac{10}{2} = 5\%$

Let number of semi-annual cycles required = T

So Using ,

Compounded Amount =  $P(1 + \frac{R}{100})^T$

$$92610 = 80000(1 + \frac{5}{100})^T$$

T = 3 semi annual cycles = 1.5 years

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**Question 25**

**A sum of money placed at compound interest doubles itself in 4 years. In how many years will it amount to four times itself ?**

- A 12 years
- B 13 years
- C 8 years
- D 16 years

**Answer:** C

**Explanation:**

it is given that A sum of money placed at compound interest doubles itself in 4 years

here we need to make the money 4 times

imagine that we invested Rs P

and hence ,

P becomes 2P in 4 years and so this 2P will become 4P in another 4 years and hence total 8 years are required to make Rs P --> Rs 4P

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