



Simple Interest and Compound Interest Questions for RRB NTPC Set-2 PDF

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Instructions

For the following questions answer them individually

Question 1

In what time would the simple interest on a certain sum be 0.125 times the principal at 10% per annum ?

- A $1\frac{1}{4}$ years
- B $1\frac{3}{4}$ years
- C $2\frac{1}{4}$ years
- D $2\frac{3}{4}$ years
- E None of these

Answer: A

Explanation:

REASONING

Question 2

How much will a sum of 12,000 deposited at a rate of 9% per annum (simple interest) for 13 years amount to ?

- A 14,040
- B 20,650
- C 13,404
- D 27,800
- E 26,040

Answer: E

Explanation:

REASONING

Instructions

Directions for the next five questions: Study the following table carefully to answer the questions. **Rate of interest (pcpa) offered by five companies on deposits under different schemes**

Company → Scheme ↓	A	B	C	D	E
I	8.5	9.0	8.0	8.5	9.0
II	9.5	8.5	9.0	9.0	8.5
III	8.0	8.0	7.5	8.5	8.5
IV	10.0	9.5	10.5	9.5	10.0

Question 3

Mr. X deposited an amount in Scheme II with company C for two years. After that he withdrew the amount and reinvested only the principal amount in scheme IV of Company B for two years. Total amount of simple interest accrued from the two schemes is Rs. 14800. What was the principal amount?

- A Rs. 48000

- B** Rs. 42000
- C** Rs. 40000
- D** Can't be determined
- E** None of these

Answer: C

Explanation:

Let principal amount be Rs. x.

$$(x \times 9 \times 2)/100 + (x \times 9.5 \times 2)/100 = 14800$$

$$\text{or } (0.18 + 0.19) = 14800$$

$$X = 14800/0.37 = \text{Rs. } 40000$$

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Question 4

Abhishek invested an amount of Rs. 45000 for two years with company B under scheme III, Which offers compound interest, Jeevan invested an equal amount for two years with company C under Scheme IV, which offer simple Interest. Who earned more interest and how much?

- A** Abhishek, Rs. 1875
- B** Jeevan, Rs. 1875
- C** Abhishek, Rs. 1962
- D** Jeevan, Rs. 1962
- E** None of these

Answer: D

Explanation:

$$\begin{aligned} \text{Interest earned by Abhishek} &= 45000 \times (1 + 8/100)^2 - 45000 \\ &= 45000 \times 27/25 \times 27/25 - 45000 \\ &= 52488 - 45000 = 7488 \end{aligned}$$

$$\text{Interest earned by Jeevan} = (45000 \times 10.5 \times 2)/100 = 9450$$

$$\text{Required difference} = 9450 - 7488 = 1962$$

Hence, Jeevan earned Rs. 1962 more.

Question 5

Mr. Lal invested Rs. 30000 in company A under Scheme II, which offers simple interest and Rs. 48000 in Company D under Scheme II, which offers compound interest. What will be the total amount of interest earned by Mr Lal in two years?

- A** Rs. 14728.80
- B** Rs. 17428.50
- C** Rs. 14827.70
- D** Rs. 16728.20
- E** None of these

Answer: A

Explanation:

$$(30000 \times 9.5 \times 2) / 100 + (48000 \times 109 / 100 \times 109 / 100 - 48000) = 5700 + (57028.8 - 48000) \\ = 5700 + 9028.8 = \text{Rs. } 14728.80$$

Instructions

For the following questions answer them individually

Question 6

The compound interest accrued on an amount of Rs.22, 000 at the end of two years is Rs.5, 596.8. What would be the simple interest accrued on the same amount at the same rate in the same period?

- A Rs.5,420
- B Rs.5,360
- C Rs.5,280
- D Rs.5,140
- E None of these

Answer: C

Explanation:

Let the rate of interest be R% per annum.

$$CI = P \left[\left(1 + \frac{R}{100} \right)^T - 1 \right] \\ = 5596.8$$

$$= 22000 \left[\left(1 + \frac{R}{100} \right)^2 - 1 \right]$$

$$\frac{5596.8}{22000} = \left(1 + \frac{R}{100} \right)^2 - 1$$

$$\left(1 + \frac{R}{100} \right)^2 = 1 + \frac{5596.8}{22000}$$

$$\left(1 + \frac{R}{100} \right)^2 = \frac{22000 + 5596.8}{22000} = \frac{27596.8}{22000}$$

$$\left(1 + \frac{R}{100} \right)^2 = \frac{275968}{220000} = \frac{12544}{10000}$$

$$\frac{R}{100} = \sqrt{\frac{12544}{10000}} - 1 = \frac{112}{100}$$

$$= \frac{R}{100} = \frac{112}{100} - 1 = \frac{112 - 100}{100} = \frac{12}{100}$$

$$R = 12$$

$$SI = \frac{\text{Principal} \times \text{Time} \times \text{Rate}}{100} = \frac{22000 \times 2 \times 12}{100} = \text{Rs. } 5280$$

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Question 7

The simple interest accrued on an amount of Rs. 22,500 at the end of four years is Rs.10,800. What would be the compound interest accrued on the same amount at the same rate of interest at the end of two years?

- A Rs. 16, 908
- B Rs. 5, 724
- C Rs. 28, 224
- D Rs. 8, 586
- E None of these

Answer: B

Explanation:

Let the rate of interest be r

$$\text{Simple Interest} = \frac{P \times r \times t}{100}$$

$$10800 = \frac{22500}{100} \times 4 \times r$$

$$r = \frac{10800}{22500} \times \frac{100}{4} = 12\%$$

$$\begin{aligned} \text{Compound Interest} &= 22500 \left(1 + \frac{12}{100}\right)^2 - 22500 \\ &= 22500 \times \frac{112}{100} \times \frac{112}{100} - 22500 \\ &= 28224 - 22500 \\ &= 5724 \end{aligned}$$

Question 8

The simple interest accrued on a certain principal is Rs 35,672 in seven years at the rate of 8 pcpa. What would be the compound interest accrued on that principal at the rate of 2 pcpa in 2 years?

- A Rs 2573.48
- B Rs 2564.86
- C Rs 2753.86
- D Rs 2654.48
- E None of these

Answer: A

Explanation:

$$PTR/100 = 35672 \Rightarrow P = 35672 \times 100 / (7 \times 8) = 63700$$

$$\text{Compound interest in 2 years} = P(1+r/100)^2 - P = 63700(1+1/50)^2 - 63700 = 2573.48$$

Question 9

The simple interest accrued on an amount of Rs. 22,500 at the end of four years is Rs.10,800. What would be the compound interest accrued on the same amount at the same rate of interest at the end of two years?

- A Rs. 16, 908
- B Rs. 5, 724
- C Rs. 28, 224
- D Rs. 8, 586
- E None of these

Answer: B

Explanation:

Let the rate of interest be r

$$\text{Simple Interest} = \frac{P \times r \times t}{100}$$

$$10800 = \frac{22500}{100} \times 4 \times r$$

$$r = \frac{10800}{22500} \times \frac{100}{4} = 12\%$$

$$\text{Compound Interest} = 22500 \left(1 + \frac{12}{100}\right)^2 - 22500$$

$$\begin{aligned}
 &= 22500 \times \frac{112}{100} \times \frac{112}{100} - 22500 \\
 &= 28224 - 22500 \\
 &= 5724
 \end{aligned}$$

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Question 10

A sum of Rs16800 is divided into two parts. One part is lent at the simple interest of 6% per annum and the other at 8% per annum. After 2 years total sum received is Rs19000. The sum lent at 6% of simple interest is

- A ` 12200
- B ` 12000
- C ` 11000
- D ` 10000
- E None of these

Answer: A

Explanation:

Let x be the amount lent for 6%

$16800 - x$ is the amount lent for 8%

$$\frac{2x \times 6}{100} + \frac{2(16800 - x) \times 8}{100} + 16800 = 19000$$

$$x = 12200$$

Question 11

Rs.X triples itself in 6 years at simple interest of R%. A person invested Rs.X at R% per annum compound interest compounded annually. If the amount received after 3 years is Rs.38394, then find the simple interest received on Rs.X at R% per annum for 4 years.

- A Rs.21540
- B Rs.22460
- C Rs.21600
- D Rs.20480
- E None of these

Answer: C

Explanation:

Given, Principal = Rs.X

Rate of interest = R%

Time duration = 6 years

Amount after 6 years = Rs.3X

Simple Interest after 6 years = Rs.3X - Rs.X = Rs.2X

$$\frac{X \times R \times 6}{100} = 2X$$

$$R = \frac{100}{3} \% = 33\frac{1}{3}\%$$

$$\text{Amount received after 3 years at compound interest} = X \times \left(1 + \frac{R}{100}\right)^3 = X \times \left(1 + \frac{33\frac{1}{3}}{100}\right)^3 = 2.37X$$

Given, $2.37X = 38394$

$\Rightarrow X = 16200$

Hence, Principal = Rs.16200

Simple Interest at 3 in 4 years $= 4 \times 3 \times 16200 = \text{Rs.}21600$

Question 12

Raman deposited Rs.P in a scheme for 3 year at the rate of 10% per annum simple interest. Total amount obtained after 3 years with Rs. 1000 was deposited in a bank which offered 20% per annum compound interest. After 2 years compound interest obtained from the bank was Rs. 6160. Then what is the value of P(in Rs.)?

A Rs. 15000

B Rs. 12000

C Rs. 10000

D Rs. 9000

E Rs. 18000

Answer: C

Explanation:

Raman deposited Rs.P in a scheme for 3 year at the rate of 10% per annum simple interest.

So interest obtained from that scheme after 3 years = Deposited amount \times Rate of interest \times Time

$$= P \times 10\% \times 3$$

$$= 30P\%$$

$$= \frac{30P}{100}$$

$$= 0.3P$$

$$= 0.3P$$

Total amount obtained after 3 years = Interest + Deposited amount

$$= 0.3P + P$$

$$= 1.3P$$

Now as per question, we have to add Rs.1000 in that amount.

So it will be $(1.3P + 1000)$. Eq.(1)

Now it will be deposited in bank at the rate of 20% per annum compound interest for 2 years. Then compound interest after 2 years = Rs. 6160 Eq.(2)

$$\text{Formula for compound interest (CI)} = \text{Principal amount} \left[\left(1 + \frac{\text{Rate of interest}}{100} \right)^{\text{Time}} - 1 \right]$$

Put the values from Eq.(1) and Eq.(2) in the formula.

$$6160 = (1.3P + 1000) \left[\left(1 + \frac{20}{100} \right)^2 - 1 \right]$$

$$6160 = (1.3P + 1000) \left[\left(\frac{120}{100} \right)^2 - 1 \right]$$

$$6160 = (1.3P + 1000) \left[\left(\frac{36}{25} \right)^2 - 1 \right]$$

$$6160 = (1.3P + 1000) \left[\left(\frac{36}{25} \right)^2 - 1 \right]$$

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$$6160 \times 11 = (1.3P + 1000)$$

$$560 \times 25 = (1.3P + 1000)$$

$$14000 = (1.3P + 1000)$$

$$14000 - 1000 = 1.3P$$

$$1.3P = 13000$$

$$P = \frac{13000}{1.3}$$

$$P = 10000$$

$$P = 10000$$

$$P = 10000$$

$$P = 10000$$

Hence, option c is the correct answer.

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Instructions

Question 13

The difference between Compound interest and Simple interest for 2 years for Principle Rs 32000 is Rs 720. What is the rate of interest ?

A 14%

B 15%

C 12%

D 10%

E 20%

Answer: B

Explanation:

$$\text{We have } CI = P \left(1 + \frac{R}{100}\right)^2 - P$$

$$CI = P \left(\left(1 + \frac{R}{100}\right)^2 - 1 \right)$$

$$CI = 32000 \left(\left(1 + \frac{R}{100}\right)^2 - 1 \right)$$

$$\text{let } R/100 = r$$

$$CI = 32000 \left((1 + r)^2 - 1 \right)$$

$$CI = 32000 * (r^2 + 2r)$$

$$SI = 32000 * 2 * R/100$$

$$SI = 64000r$$

$$32000 * (r^2 + 2r) - 64000r = 720$$

$$3200(r^2 + 2r) - 6400r = 72$$

$$3200r^2 + 6400r - 6400r = 72$$

$$r^2 = 72/3200$$

$$r^2 = 0.0225$$

$$r = 0.15$$

$$R = 0.15 * 100$$

$$R = 15\%$$

Question 14

A sum of money at compound interest yields an amount of Rs 1,25,000 in 3 years and Rs 1,95,312.5 in 5 years. What is the rate of interest per annum ?

- A 15%
- B 20%
- C 25%
- D 30%
- E 10%

Answer: C

Explanation:

$$A = P \left(1 + \frac{R}{100}\right)^3$$

$$125000 = P \left(1 + \frac{R}{100}\right)^3$$

$$195312.5 = P \left(1 + \frac{R}{100}\right)^5$$

$$\left(1 + \frac{R}{100}\right)^2 = 1.5625$$

$$1 + \left(\frac{R}{100}\right) = 1.25$$

$$\frac{R}{100} = 0.25$$

$$R = 25\%$$

Instructions

For the following questions answer them individually

Question 15

Ajay invested a certain amount of money in simple interest for a period of 3 years at 17% simple interest and gets an interest of 2856. If he invested the total amount received in a scheme which offered compound interest at a rate which is 3% more than the earlier rate for a period of 2 years. Then find the total interest he received from the scheme at the end of 2 years (approximately)?

- A 3756
- B 3607
- C 3475
- D 4500
- E 3721

Answer: E

Explanation:

As per the given question,

$$\frac{P \times 3 \times 17}{100} = 2856$$

$$P = 5600$$

He invested the total amount i.e (5600 + 2856) 8456 in a scheme for two years at 20% (17% + 3%).

For the first year, the interest accumulated will be 20% of 8456 i.e 1691.2

The total amount will be 8456 + 1691.2 = 10147.2

For the second year, the interest accumulated will be 20% of 10147.2 i.e 2029.44

Total interest for two years will be 1691.2 + 2029.44 = 3720.64 (approximately)

Hence, option E is the correct answer.

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