SHIKSHA CLASSES

Sub. : Maths | **Question Paper** | **Marks : 20**

Std. : VIIIth - S.B. | **14. Compound interest** | **Time : 45 min.**

Q.1 : A) Select the most appropriate Alternative. 02

1) If interest is compounded then A = _____.

a) $P\left(1+\frac{R}{100}\right)$ b) $\left(1+\frac{R}{100}\right)^N$ c) $P\left(1+\frac{R}{100}\right)^N$ d) $P(1+R)^N$

2) If compound interest = CI, Amount = A and principal = P, then true statement is.

a) CI = A + P b) CI = A – P c) A = CI – P d) P = CI – A

: B) Solve the following. 01

1) If P = ₹ 1000, R = 10% p.a. T = 2 years then find SI.

Q.2 : A) Solve any one of the following. (Activity) 02

1) Activity : Fill in the blanks.

The amount of a certain principal is ₹ 6655 in 3 years, compounded annually at the rate of 10 p.c.p.a. Find the principal.

A = ₹ 6655; R = 10 p.c.p.a; N = 3 years

$$A = P \times \left(1+\frac{\square}{100}\right)^N$$

$$\therefore \quad 6655 = P \times \left(1+\frac{\square}{100}\right)^3 = P \times \left(\frac{110}{100}\right)^3$$

$$\therefore \quad P = \frac{6655 \times 10^3}{11 \times 11 \times 11} \quad P = \square \times 10^3 \quad = \square$$

$\therefore$ the principal was ₹ 5000.

2) Activity : Fill in the blanks.

Here, principal (P) = ₹ 2000

Rate (R) = 5 p.c.p.a.

Duration (N) = 2 years

$$A = P\left(1+\frac{R}{100}\right)^{N} = 2000\left(1+\frac{\square}{100}\right)^{2}$$

$$= 2000 \times \frac{\square}{100} \times \frac{\square}{100}$$

$$= \frac{\square \times 105 \times 105}{10} = ₹\square$$

Compound Interest = Amount – Principal

$$= \square - \square$$

$$= ₹\square$$

Ans : Amount = ₹ 2,205 and compound interest = ₹ 205.

: B) Solve any one of the following. 02

1) On the construction work of a flyover bridge there were 320 workers initially. The number of workers were increased by 25% every year. Find the number of workers after 2 years.

2) A principal amounts to ₹ 13,924 in 2 years by compound interest at 18 p.c.p.a. Find the principal.

Q.3 : A) Solve any one of the following.(Activity) 03

1) The population of a suburb is 16,000. Find the rate of increase in the population if the population after two years is 17,640.

P = Population of the suburb initially = 16,000

A= Population of the suburb after 2 years = 17,640

N= Duration = 2 years

Let R be the rate of increase in population per year.

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

$$\therefore 17640 = 16000\left(1+\frac{R}{100}\right)^{2}$$

$$\therefore \frac{17640}{16000} = \left(1+\frac{R}{100}\right)^{2}$$

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

Taking square roots on both the sides, we get,

$$\frac{\square}{\square} = 1 + \frac{R}{100}$$

$$\therefore 1 + \frac{R}{100} = \frac{\square}{\square}$$

$$\therefore \frac{R}{100} = \frac{\square}{\square} - 1$$

$$\therefore \frac{R}{100} = \frac{\square}{40}$$

$$\therefore R = \frac{2}{40} \times 100$$

$\therefore$ R= 5%

The population of suburb increases 5% every year.

2) The population of a city increases at compounding rate of 8% per year. Find the population in the year 2012 if population in the year 2010 was 2,50,000.

P = Population in the year 2010 = 2,50,000

A = Population in the year 2012;

R = Rate of increase of population per year = 8%

N = 2 years

A = Population in the year 2012, that is population after 2 years

$$A = P\left(\square\right)^N = 250000 \times \left(1 + \frac{\square}{100}\right)^{\square}$$

$$= 250000 \times \left(\frac{\square}{100}\right)^2$$

$$= 250000 \times \left(\frac{\square}{100}\right) \times \left(\frac{\square}{100}\right) = 2,91,600.$$

$\therefore$ In the year 2012, population of the city was 2,91,600.

: B) Solve any one of the following. 03

1) The cost price of a machine is 2,50,000. If the rate of depreciation is 10% per year find the depreciation in price of the machine after two years.

2)To start a business Shalaka has taken a loan of ₹ 8000 at a rate of $10\frac{1}{2}$ p.c.p.a. After two years how much compound interest will she have to pay?

Q.4 : Solve any one of the following. 04

1) The difference between the compound interest and simple interest on a certain sum of money at 10% per annum for 2 years is ₹ 500. Find the sum when the interest is compounded annually?

2) Find the difference between simple interest and compound interest on ₹ 20000 at 8 p.c.p.a. For 2 years.

Q.5 : Solve any one of the following. 03

1) The population of a town was 160000 three years ago. If it had increased by 3%, 2.5% and 5% in the last three years. Find the present population of the town.

2) Find the number of years for which the compound interest of ₹ 9000 is ₹ 1890, at the rate of 10 p.c.p.a.

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