COMPOUND – INTEREST

INTRODUCTION

1. Let Principal = P, Rate = R% per annum, Time = n years.

2. **When interest is compound Annually:**

   $$\text{Amount} = P \left(1 + \frac{R}{100}\right)^n$$

3. **When interest is compounded Half-yearly:**

   $$\text{Amount} = P \left[1 + \frac{(R/2)}{100}\right]^{2n}$$

4. **When interest is compounded Quarterly:**

   $$\text{Amount} = P \left[1 + \frac{(R/4)}{100}\right]^{4n}$$

5. **When interest is compounded Annually but time is in fraction, say $3\frac{2}{5}$ years.**

   $$\text{Amount} = P \left(1 + \frac{R}{100}\right)^3 \times \left(1 + \frac{\frac{2}{5}R}{100}\right)$$

6. **When Rates are different for different years**, say R_1%, R_2%, R_3% for 1st, 2nd and 3rd year respectively.

   $$\text{Then, Amount} = P \left(1 + \frac{R_1}{100}\right)\left(1 + \frac{R_2}{100}\right)\left(1 + \frac{R_3}{100}\right).$$

7. **Present worth of Rs. x due n years hence is given by:**

   $$\text{Present Worth} = \frac{x}{\left(1 + \frac{R}{100}\right)}.$$

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EXERCISE-

01. Present price of a machine is Rs.6250. If it price increases by 4% yearly. Find the price of it 2 year hence.
   (a) 6760 Rupees **(b)** 6740 Rupees **(c)** 6710 Rupees **(d)** 6789 Rupees **(e)** None

02. Find compound interest on Rs.15000 at 10% per annum for 2 years.
   (a) 3167 Rupees **(b)** 3150 Rupees **(c)** 3188 Rupees **(d)** 3110 Rupees **(e)** None

03. Find compound interest on Rs.4000 at 5% per annum for 18 months. Compounded half yearly.
   (a) 630.50 Rupees **(b)** 620.33 Rupees **(c)** 620.55 Rupees **(d)** 618.67 Rupees **(e)** None

04. If a person invest Rs.18000 at 10% annum for 3 years. What amount will he get -
   (a) 23955 Rupees **(b)** 23988 Rupees **(c)** 23958 Rupees **(d)** 23944 Rupees **(e)** None

05. Find compound interest on Rs.9000 at 4% per annum for 2 years.
   (a) 900 Rupees **(b)** 900.90 Rupees **(c)** 333 Rupees **(d)** 334.40 Rupees **(e)** None

06. At compound interest if a certain sum of money doubles in 3 years at 3% per annum. Find that sum -
   (a) 100 Rupees **(b)** 2400 Rupees **(c)** 120 Rupees **(d)** Impossible **(e)** None

07. Present population of a village is 121100. If it increases at 10% per annum. What was the population of that village 2 years hence.
   (a) 100000 Rupees **(b)** 100100 Rupees **(c)** 112000 Rupees **(d)** 221000 Rupees **(e)** None

08. Interest of first year is Rs.840 of certain principle at 10% per annum. Find the interest of 2nd year.
   (a) 942 Rupees **(b)** 842 Rupees **(c)** 429 Rupees **(d)** 924 Rupees **(e)** None

09. Find compound interest on Rs.500 at 40% per annum for 18 months. Compounded quarterly.
   (a) 3859 Rupees **(b)** 3856.60 Rupees **(c)** 3857.80 Rupees **(d)** 3758 Rupees **(e)** None

10. Compound interest of first year is Rs.56 of certain sum of money at 5% per annum. How much interest will be get after 2 year.
   (a) 411.80 Rupees **(b)** 141.80 Rupees **(c)** 114.80 Rupees **(d)** 125 Rupees **(e)** None

11. Difference of half and quarterly compound interest for 1 year on Rs.500 at 40%.
   (a) 12.05 Rupees **(b)** 15.00 Rupees **(c)** 232 Rupees **(d)** 220 Rupees **(e)** None

12. Find compound interest on Rs.1000 at 5% per annum for 3 years.
   (a) 1057 Rupees **(b)** 1257 Rupees **(c)** 1157 Rupees **(d)** 1300 Rupees **(e)** None

13. Find compound interest on Rs.4800 at 6% per annum of 2 years.
   (a) 544.96 Rupees **(b)** 576 Rupees **(c)** 593.28 Rupees **(d)** 588 Rupees **(e)** None

14. A sum of money amounts Rs.4840 after 2 years end to Rs.6750 after 4 years on compound interest the sum is -
   (a) 10.5 % **(b)** 8 % **(c)** 9 % **(d)** 10 % **(e)** None

15. If the compound interest of an amount at rate of 5% per annum for 2 years in Rs.164 then the principle is
   (a) 4000 Rupees **(b)** 2500 Rupees **(c)** 3000 Rupees **(d)** 3050 Rupees **(e)** None

ANSWER SHEET

COMPOUND INTREST EXERCISE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A	B	A	C	E	D	A	D	C	C	A	E	C	D	C