

19TP201L / QUANTITATIVE APTITUDE AND BEHAVIOURAL SKILLS

UNIT - IV MEASUREMENTS

TOTIC 3 : COMPOUND INTEREST

Principal = P , Rate = R% per annum , Time = T years.

I. When interest is compound Annually : $A = P \left(1 + \frac{R}{100} \right)^T$

II. When interest is compounded Half – yearly : $A = P \left(1 + \frac{\frac{R}{2}}{100} \right)^{2T}$

III. When interest is compounded Quarterly : $A = P \left(1 + \frac{\frac{R}{4}}{100} \right)^{4T}$

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

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

V. *Compound interest = Amount – Principal*

EXAMPLE PROBLEMS :

Example 1 : After 3 years, how much compound interest will be obtained on Rs.7800 at the interest rate of 5% per annum?

(a) ₹ 1235.685 (b) ₹ 1287.680 (c) ₹ 1248.750 (d) ₹ 1229.47

Example 2 : Find compound interest on Rs. 8000 at 15% per annum for 2 years 4 months, compounded annually.

(a) ₹ 3109 (b) ₹ 3091 (c) ₹ 2980 (d) ₹ 3100

Example 3 : Find the compound interest on Rs. 10,000 in 2 years at 4% per annum, the interest being compounded half-yearly.

(a) ₹ 524.32 (b) ₹ 624.32 (c) ₹ 724.32 (d) ₹ 824.32

Example 4 : Find the compound interest on Rs. 16,000 at 20% per annum for 9 months, compounded quarterly.

(a) 2422 (b) 2522 (c) 2622 (d) 2722

Example 5 : The simple interest accrued on an amount of Rs.40000 at the end of 3 years is Rs.12000.what would be the compound interest accrued on the same amount at the same rate in the same period?

(a) Rs.18,765 (b) Rs.15,350 (c) Rs.21,555 (d) Rs.13,240

Example 6 : Rohit invested a certain amount at the rate of 6 p.c.p.a and obtained a simple interest of Rs.8730 at the end of 3 years. What amount of compound interest would he obtain on the same amount at the same rate of interest at the end of 2 years?

- (a) Rs.5949.60 (b) Rs.5820 (c)Rs.5994.60 (d)Rs.5900

Example 7 : In how many years Rs. 100000 become Rs. 133100 at compound interest rate at 10% per annum?

- (a) 1 (b) 2 (c) 3 (d) 4

Example 8 : At what rate percent per annum of compound interest will Rs.1600 amount to Rs.1852.20 in 3 years?

- (a) 2% (b) 4% (c) 5% (d) 10%

Example 9 : Find the sum of money which will amount to Rs.26010 in 6 months at the rate of 8% per annum when the interest is compounded quarterly.

- (a) Rs.20000 (b) Rs.15000 (c) Rs.25000 (d) Rs.10000

Example 10 : If the compound interest on a certain sum at $16\frac{2}{3}\%$ for 3 years is Rs.1270, find the simple interest on the same sum at the same rate and for the same period.

- (a) 1080 (b) 1089 (c) 2345 (d) 1908

Example 11 : The compound interest accrued on an amount of Rs.22000 at the end of two years is Rs.5596.80 .What would be the simple interest accrued on the same amount at the same rate in the same period?

- (a) Rs.5420 (b) Rs.5360 (c) Rs.5280 (d) Rs.5140

Example 12 : The difference between the compound interest and simple interest on a certain sum at 5% per annum for 3 years is Rs.15.25. Find the sum.

- (a) 1000 (b) 2000 (c) 3000 (d) 5000

Example 13 : The difference between the compound interest and the simple interest accrued on an amount of Rs. 18,000 in 2 years was Rs. 405. What was the rate of interest p.c.p.a. ?

- (a) 5% (b) 10% (c) 15% (d) 20%

Example 14 : The difference between compound and simple interest on a certain sum of money at the interest rate of 10% per annum for $1\frac{1}{2}$ years is Rs.183,when the interest is compounded semi-annually.Find the sum of money.

- (a) Rs.20000 (b) Rs.25000 (c) Rs.24000 (d) Rs.22000

Example 15 : Divide Rs. 1301 between A and B, so that the amount of A after 7 years is equal to the amount of B after 9 years, the interest being compounded at 4% per annum

- (a) Rs.620,681 (b) Rs.626,675 (c) Rs.650,651 (d) Rs.676,625

EXERCISE PROBLEMS :

Example 1 : What would be the compound interest accrued on an amount of Rs.8000 at the rate of 15 p.c.p.a in 3 years ?

- a) Rs.4051 b) Rs.4167 c) Rs.4283
d) Rs.4325 e) None of these

Example 2 : What would be the compound interest accrued on amount of Rs.8400 at the rate of 12.5% p.a at the end of 3 years?

- a) Rs.2584.16 b) Rs.3560.16 c) Rs.3820.14
d) Rs.4205.62 e) None of these

Example 3 : The compound interest on Rs.2800 for 18 months at 10% p.a is

- a) Rs.420 b) Rs.434 c) Rs.436.75 d) Rs.441.35

Example 4 : The compound interest on Rs.20,480 at $6\frac{1}{4}$ % p.a, for 2 years 73 days ,is

- a) Rs.2929 b) Rs.3000 c) Rs.3131 d) Rs.3636

Example 5 : A man saves Rs.200 at the end of each year and lends the money at 5% compound interest.How much will it become at the end of 3 years?

- a) Rs.565.25 b) Rs.635 c) Rs.662.02 d) Rs.666.50

Example 6 : If the rate of interest be 4% p.a, for first year , 5% p.a, for second year and 6% p.a for third year, then the compound interest of Rs.10000 for 3 years will be

- a) Rs.1575.20 b) Rs.1600 c) Rs.1625.80 d) Rs.2000

Example 7 : What will be the compound interest accrued on the amount of Rs.10000 at 20 p.c.p.a, in 2 years if the interest is compounded half-yearly?

- a) Rs.4400 b) Rs.4600 c) Rs.4641
d) Rs.4680 e) None of these

Example 8 : A bank offers 5% compound interest calculated on half-yearly basis. A customer deposits Rs.1600 each on 1st January and 1st July of a year. At the end of the year, the amount he would have gained by way of interest is:

- a) Rs.120 b) Rs.121 c) Rs.122 d) Rs.123

Example 9 : What is the difference between the compound interests on Rs.5000 for $1\frac{1}{2}$ years at 4% p.a, compounded yearly and half-yearly?

- a) Rs.2.04 b) Rs.3.06 c) Rs.4.08 d) Rs.8.30

Example 10 : Find the compound interests on Rs.15625 for 9 months at 16% per annum compounded quarterly

- a) Rs.1851 b) Rs.1941 c) Rs.1951 d) Rs.1961

Example 11 : A man gets a simple interest of Rs.1000 on a certain principal at the rate of 5 p.c.p.a, in 4 years. What compound interest will the man get on twice the principal in 2 years at the same rate?

- a) Rs.1000 b) Rs.1005 c) Rs.10125
d) Rs.11025 e) None of these

Example 12 : The difference between simple interest and compound interest on Rs.P at R% p.a, in 2 years is

- a) Rs. $\frac{PR}{100}$ b) Rs. $\frac{2PR}{100}$ c) Rs. $\frac{PR^2}{100}$ d) Rs. $\frac{PR^2}{(100)^2}$

Example 13 : A man invested Rs.20000 with rate of interest at 20% p.a. The interest was compounded half-yearly for first one year and in the next year it was compounded yearly. What will be the total interest earned at the end of 2 years?

- a) Rs.8040 b) Rs.8800 c) Rs.9040 d) Rs.9800 e) None of these

Example 14 : Compound interest accrued on an amount of Rs.26500 in 2 years is Rs.9775.85 .What is the rate of interest p.c.p.a?

- a) 12% b)15% c) 17% d) 22%

Example 15 : A man borrows Rs.4000 at 15% compound rate of interest. At the end of each year he pays back Rs.1500.How much amount should be pay at the end of the third year to clear all his dues?

- a) Rs.874.75 b) Rs.824.50 c) Rs.924.25 d) Rs.974.25