Lesson

5

K L E TECHNOLOGICAL UNIVERSITY
DEPARTMENT OF HUMANITIES

PROFESSIONAL APTITUDE AND LOGICAL REASONING

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Simple & Compound Interest

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Simple and Compound Interest

Vidyaranyapura
Bangalore – 560 097
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The concept of simple and compound interest is one of those concepts which are widely used in business and banking etc. Questions are rarely asked in any premier examination from this topic but it is important for the purpose of data interpretation. Since the questions based on thee concept of interest are rather easy so it is common to find such questions in a lot of IT and Non-IT companies recruitment tests. They are also asked in MAT, PGCETs etc.

Interest is some fixed percentage of the principal (which is the invested/borrowed amount of money)
Some Keywords
Principal (P): Sum of money deposited/loaned. Also known as capital
Interest: Money paid by the borrower, calculated as a percentage of the principal
Time (T/n): Duration for which the money is lent/borrowed
Rate of Interest (r/R): rate at which the interest is charged on principal
Amount (A): Principal + Interest
Simple Interest: When the interest is calculated uniformly only on the principal for the given time period
Compound Interest: In this case for every next period of time the interest is charged on the total previous amount (which is the sum of the principal and interest charged on it so far)

Important Formulae

Simple Interest (SI) = P X R X T / 100
Amount = SI + P

Conversion of Time Period-Rate of Interest

Given (r%)	Given (t)	Required (r%)	Required (t)
r% annual	t years	(r/2)% half-yearly	2t
r% annual	t years	(r/4)% quarterly	4t
r% annual	t years	(r/12)% monthly	12t

Compound Interest

1. CI = A – P
2. Amount (A) = $\left(1+\frac{r}{100}\right)^{t}$
3. When the rate of interest is half-yearly A = $\left(1+\frac{r/2}{100}\right)^{2t}$
4. When the rate of interest is quarterly A = $\left(1+\frac{r/4}{100}\right)^{4t}$
5. Difference between CI and SI for two years = $P\left(\frac{r}{100}\right)^{2}$
6. Difference between CI and SI for two years = $P\left(\frac{r}{100}\right)^{2}\left(\frac{r}{100}+3\right)$

Tax slabs

Annual Income	***Applicable Tax***
Till Rs.1, 00,000	0 %
Rs.1, 00,001 to Rs.1, 50,000	10%
Rs.1, 50,001 Rs. to Rs.2, 50,000	20%
Rs.2, 50,001 to Rs.10, 00,000.	30%
Rs.10, 00,001 +	40%

01 Find the simple interest if P = 20000 Rs, rate of interest = 4% / annum and the duration is 4 years.
(a) 3200 Rs. (b) 4200 Rs. (c) 6400Rs. (d) 4600 Rs.

02 Find the compound interest if P = 200000 Rs, @ rate of interest = 5% / annum and the duration is 2 years, compounded annually.
(a) 20000 Rs. (b) 40000 Rs. (c) 20500 Rs. (d)None of these

03 Find the compound interest, if P = 1000 Rs, @ rate of interest = 10% / annum and the duration is 1 years, compounded bi-annually.
(a) 102.5 Rs. (b) 112.5 Rs. (c) 200 Rs. (d) None of these

04 If a bank is giving assurance to give double the principal, just in 12 years, computing SI, what is the interest rate offered by the bank?
(a) 8.33% (b) 4.43% (c) 8.5% (d)None of these

05 What is the difference between CI and SI after 2 years, where principal is 19000 Rs. and rate of interest is 5 %.(Provided that CI is compounded annually?)
(a) 47.5 Rs. (b) 57.5 Rs. (c) 67.5 Rs. (d)None of these

06 What is the difference between CI and SI after 2 years, where principal is 2400 Rs. and rate of interest is 50 % / annum. (Provided that CI is compounded annually.)
(a)755 Rs. (b) 600 Rs. (c) 875 Rs. (d) 757 Rs.

07 Find the total interest paid at the end of period, if money borrowed is 250000 Rs., rate of interest = 12% and the duration is 6 months, compounded Quarterly (i.e. Four times a year).
(a) 15225 Rs. (b)15235 Rs. (c) 14575 Rs. (d)None of these

08 What is the difference between CI and SI after 3 years, where principal is 30000 Rs. and rate of interest is 50 %.(Provided that CI is compounded annually.)
(a) 0 Rs. (b) 15000 Rs. (c) 52500 Rs. (d) 26250 Rs.

09 Find SI on 600000 Rs. at the rate of 10 % / annum for 73 days.
(a) 12000 Rs. (b) 1200 Rs. (c) 1154 Rs. (d) None of these.

10 Find SI on 18000 Rs. at the rate of 25 % / annum for 9 months.
(a) 2914 Rs. (b) 2000 Rs. (c) 3375 Rs. (d) None of these.

11 Find the total amount received at the end of period, if money borrowed is 900000 Rs. rate of interest = 36% and the duration is 2 months, interest being compounded monthly.
(a) 894510 Rs. (b) 945810 Rs. (c) 954810 Rs. (d)Indeterminable

12 Find the total amount received at the end of period, if money borrowed is 1000, rate of interest = 20% and the duration is 12 months, interest being compounded twice a year.
(a) 121 Rs. (b) 2110 Rs. (c) 1210 Rs. (d) 1120 Rs.

13 Find the total interest paid at the end of period, if money borrowed is 5000 Rs, rate of interest = 24% / annum and the duration is 8 months, interest being compounded thrice a year.
(a) 382 Rs (b) 832 Rs (c) 823 Rs (d) None of these

14 What will Rs. 10000 amount to in 8 years @ 12.5 % / annum, interest being payable every moment. e = 2.71828
(a) 27182 Rs (b) 2718.2 Rs (c) 12718 Rs (d) 1828 Rs

15 A man borrowed Rs. 24000 from two money lenders. For one loan , he paid 15 % / annum & for the other 18 % /annum. At the end of one year , he paid Rs. 4050. How much did he borrow at 15% rate ?
(a) 9000 Rs. (b) 15000 Rs. (c) Either (a) or (b) (d) None of these

16 Find Present worth (P.W.) of Rs. 9300 due 3 years hence @ 8% / annum . Also find the true discount (T.D).
(a) 9300 Rs , 1800 Rs (b) 7500 Rs , 1800 Rs (c) 1800 Rs , 7500 Rs (d) 1800 Rs , 9300 Rs

17 If True discount (T.D.) on a certain sum due 6 months hence @ 15 % / annum is Rs. 1200. What is banker's discount (B.D.) on the same for the same time and at the same rate ?
(a) 90 Rs (b) 1200 Rs (c) 1290 Rs (d) None of these

18 What is the value of Equated yearly installment (CI), when a person is willing to repay debt 2 installments, where P = 10000 Rs, rate of interest is 50 % / annum, interest being compounded annually.
(a)15000 Rs. (b) 6000 Rs. (c) 9000 Rs. (d) None of these

19 A sum of Rs. 26000 is lent out in two parts in such a way that the interest on one part @ 10 % / annum for 5 years is equal to that on another @ 9% / annum for 6 years. What is the sum lent out at 10% / annum?
(a) 11500 Rs (b) 12500 Rs (c) 14500 Rs (d) 13500 Rs

20 Find the annual tax paid by a person whose annual income is Rs.2, 00,000.
(a)40,000 Rs (b) 10,000 Rs (c) 15,000 Rs (d) 5,000 Rs

21 Find the annual tax paid by a person whose annual income is Rs.8, 00,000.
(a) 1,90,000 Rs (b) 1,85,000 Rs (c) 1,70,000 Rs (d) None of these

22 Find the annual tax paid by a person whose annual income is Rs.1, 50,000.
(a) 5000 Rs (b) 15000 Rs (c) Either (a) or (b) (d) None of these

23 Find the annual tax paid by a person whose annual income is Rs.3, 50,000.
(a) 55,000 Rs (b) 35,000 Rs (c) 25,000 Rs (d) None of these

24 Find the annual tax paid by a person whose annual income is Rs.11, 00,000.
(a) 2,25,000 Rs (b) 2,90,000 Rs (c) 2,85,000 Rs (d) 2,50,000 Rs

25 Find the simple interest if P=120 Rs, rate of interest = 12.5% / annum and the duration is 8 years.
(a) 187.89 Rs. (b) 120 Rs. (c) 100 Rs. (d) None of these

26 Find the compound interest if Principal sum = 800 Rs, rate of interest = 10% / annum and the duration is 3 years, compounded annually.
(a) 529.6 Rs (b)132.4 Rs (c)240 Rs (d) 264.8 Rs

27 Find the compound interest, if P=20000 Rs, rate of interest = 40% / annum and the duration is 1.5 years, compounded twice in a year.
(a) 34880 Rs. (b)14600 Rs. (c) 14560 Rs. (d) None of these

28 Find the total amount received at the end of period, if P=10000 Rs., rate of interest = 40% and the duration is 1 year, compounded Quarterly (i.e. Four times a year).
(a)11^4 Rs. (b) 121^2 Rs. (c) 14641 Rs. (d)All of these

29 Find the total interest paid at the end of period, if money borrowed is 300000, rate of interest = 12% and the duration is 2 months, interest being compounded monthly. [N = 2 months = 1 / 6 Year]
(a) 76320 Rs. (b) 3060 Rs. (c) 6030 Rs. (d)Indeterminable

30 What is the difference between CI and SI after 2 years, where principal is 1300 Rs. and rate of interest is 10 %.(Provided that CI is compounded annually.)
(a) 260 Rs. (b) 13 Rs. (c) 273 Rs. (d)None of these

31 If a bank is giving assurance to give triple the principal, just in 3 decades, computing SI, what is the annual interest rate offered by the bank?
(a) 6.66% (b) 10 % (c) 25% (d) 20 %

32 Find SI on 1000 Rs. at the rate of 20 % / annum for 146 days.

(a) 75.6 Rs. (b) 80 Rs. (c) 65.7 Rs. (d) None of these

33 Find SI on 1750 Rs. at the rate of 12 % / annum for 21 months.
(a) 266 Rs. (b) 383.8 Rs. (c) 4410 Rs. (d) 367.5 Rs.

34 What will Rs. 20000 amount (approx) to in 5 years @ 10 % / annum, interest being payable every moment. $e^{\frac{1}{2}} = 1.6487$
(a) 10000 Rs (b) 32210 Rs (c) 32974 Rs (d) None of these

35 A simple interest @ y% / annum for y years will be Rs. y on a sum of ?
(a) y Rs. (b) 100y Rs. (c) (y / 100) Rs. (d) (100 / y) Rs.

36 Find the annual tax paid by a person whose annual income is Rs.5, 00,000.
(a) 80,000 Rs (b) 75,000 Rs (c) 1,00,000 Rs (d) None of these

37 Find the annual tax paid by a person whose annual income is Rs.6, 50,000.
(a) 1,10,000 Rs (b) 1,45,000 Rs (c) 1,25,000 Rs (d) None of these

38 Find the annual tax paid by a person whose annual income is Rs.12, 00,000.
(a) 2,50,000 (b) 3,10,000 Rs (c) 1,05,000 Rs (d) 3,30,000 Rs
Rs

39 What is the value of Equated yearly installment (CI), when a person is willing to repay debt 2 installments, where P=21000 Rs, rate of interest is 10 % / annum, interest being compounded annually.
(a)12010 Rs. (b) 21100 Rs. (c) 11200 Rs. (d) 12100 Rs.

40 What is the difference between CI and SI after 3 years, where principal is Rs. 30000 and rate of interest is 20 %.(Provided that CI is compounded annually.)
(a) 5040 Rs. (b) 1200 Rs. (c) 3840 Rs. (d)None of these

41 Find the compound interest (approximately) if P = Rs 1200 @ rate of interest = 5% / annum and the duration is 2 years, compounded bi-annually.
(a)119.9 Rs. (b)124.5 Rs. (c)124.9 Rs. (d)None of these

42 Find the total amount received at the end of period, if P = 10000 Rs. @ rate of interest = 20% and the duration is 0.5 year, compounded Quarterly (i.e. Four times a year).
(a) 1025 Rs (b) 11025 Rs (c) 11000 Rs (d) None of these

43 What is the value of Equated yearly installment (CI), when a person is willing to repay debt 2 installments, where P = 300 Rs. @ rate of interest is 50 %, interest being compounded annually.
(a) 150 Rs. (b) 720 Rs. (c) 270 Rs. (d)None of these

44 What is the value of Equated yearly installment (CI), approximately, when a person is willing

to repay debt 3 installments, where P = 40000 Rs @ rate of interest is 25 %, interest being compounded annually.
(a)20250 Rs. (b)20500 Rs. (c) 20000 Rs. (d)None of these

45 What will Rs. 10000 amount to in 30 months @ 10 % / annum, interest being payable every moment. $e^{\frac{1}{4}} = 1.28402$
(a) 12840 Rs (b) 12500 Rs (c) 12690 Rs (d) None of these

46 How much is the simple interest on Rs. 15 for 4 months @ 3 paisa / rupee* month?
(a) Rs. 1.8 (b) Rs. 18 (c) Rs. 180 (d) Rs. 1800

47 Find the annual tax paid by a person whose annual income is Rs.15, 00,000.
(a) 4,45,000 Rs (b) 4,30,000 Rs (c) 4,50,000 Rs (d) 4,25,000 Rs