BHARAT SCHOOL OF BANKING
SIMPLE INTREST AND COMPOUND INTREST

Question 1

Veer invested an amount of Rs.9000 for 2 years at compound interest rate 15% per annum. How much amount will Veer obtain as interest?

a)Rs.2902.50   b)Rs.2900.50   c)Rs.2899.50   d)Rs.2899

Answer : a)Rs.2902.50

Solution:

When interest is compounded Annually, we have to use the following formula:

Amount = P x [1+ (R/100)]n where P = principal, R = rate of interest and n = time(years)

Here P = Rs.9000, R = 15%, n = 2 years.

Then, Amount= Rs.9000 x [1 + (15/100)]2 = 9000 x (23/20)2 = 23805/2 = Rs.11902.5

The amount obtained by the way of interest in compound interest = Amount - principal = Rs.(11902.5 - 9000) = Rs.2902.50

Hence the required answer is Rs.2902.50

Question 2

Shagi deposits Rs.1500 each on 1st January and 1st July of a year at the rate of 8% compound interest calculated on half-yearly basis. How much amount he would have at the end of the year?

a)Rs.2150.50   b)Rs.3140.40   c)Rs.3182.40   d)Rs.2152.50

Answer : c) Rs.3182.40

Solution:

When interest is compounded Half-yearly: Amount = P x [1+ (R/2)/100]2n

The total amount for the investment on 1st january is:

Amount1 = Rs. 1500 x [1+ (8/2)/100]2x1

= Rs. 1500 x [1 + (4/100)]2

= Rs. 1500 x [26/25]2

The total amount for investment on 1st july is:

(Here n= 1/2 year since it starts from 1st july to end of the same year)

Amount2 = Rs. 1500 x [1+ (8/2)/100][2 x(1/2)]

= Rs. 1500 x [1+ 4/100]

= Rs. 1500 x [26/25]

The total amount at the end of the year = amount1 + amount2

= 1500 x [26/25]2 + 1500 x [26/25]

= 1500 x [26/25] x [(26/25) + 1]

= 1500 x 26/25 x 51/25

= 3182.40

Hence Rs.3182.40 is the required answer.

Question 3

What is the difference between the compound interests on Rs.10,000 for 2 years at 5% per annum compounded yearly and half-yearly?

a)Rs.6.00   b)Rs.6.25   c)Rs.6.50   d)Rs.6.75

Answer : b)Rs.6.25

Solution:

Here, P = Rs.10,000, n = 2 years, and R = 5%

Amount invested for compound interest (yearly) = Rs. 10000 x [1 + 5/100] = Rs.10000 x 21/20 = Rs.10,500

Amount invested for compound interest (Half-yearly) = Rs. 10000 x [1 +(5/2)/100]2 = 10000 x (41/40)2 = Rs.10,506.25

Difference = Rs.(10506.25-10500) = Rs.6.25

Question 4

If a sum of Rs.8000 lended for 20% per annum at compound interest then the sum of the amount will be Rs.13824 in:

a) 2 years b) 1year c) 3years d) 4years

Answer : c)3years

Solution :

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

When interest is compounded Annually total amount can be calculated by using the formula,

Total Amount = $P(1 + R/100)n$

Given that, P = Rs.8000, R = 20% per annum

We have to find the time period during which the amount will be Rs.13824

i.e., Rs.13824 = 8000 x $(1 + 20/100)^n$

13824/8000 = (120/100)n

$(24/20)^3$ = (12/10)n

$(12/10)^3$ = (12/10)n

Therefore, n = 3.

Hence the required time period is 3 years.

Question 5

Find the compound interest on a principal amount of Rs.5000 after 2 years, if the rate of interest for the 1st year is 2% and for the 2nd year is 4%.

a) Rs.304 b) Rs.314 c) Rs.324 d) Rs.334

Answer : a)Rs.304

Solution :

When Rates are different for different years, say R1%, R2%, R3% for 1st, 2nd and 3rd year respectively.

Then, Amount (= Principal + Compound interest) = P(1 + R1/100)(1 + R2/100)(1 + R3/100).

Here R1 = 2% R2 = 4% and p = Rs.5000, we have to find CI (compound interest).

CI = 5000(1 + 2/100)(1 + 4/100) - 5000

= 5000 x (102/100)(104/100) - 5000

= 5000 x (51/50) x (52/50) - 5000

= 5000 x (51 x 52/2500) - 5000

= 5000 x (2652 / 2500) - 5000

= 5304 - 5000 = 304

Hence the required compound interest is Rs.304.

Question 6

What sum(principal) will be amount to Rs.34536.39 at compound interest in 3 years, the rate of interest for 1st, 2nd and 3rd year being 5%, 6% and 7% respectively?

a) Rs.25576 b) Rs.29000 c) Rs.28012 d) Rs.24000

Answer : b)Rs.29000

Solution :

Let Rs.P be the required sum.

34536.39 = p(1 + 5/100)(1 + 6/100)(1 + 7/100)

= p (105/100) x (106/100) x (107/100)

p = 34536.39 x 100 x 100 x 100 / 105 x 106 x 107

p = Rs.29000

Hence the required amount is Rs.29000

Question 7

What will be the amount if sum of Rs.10,00,000 is invested at compound interest for 3 years with rate of interest 11%, 12% and 13% respectively?

a) Rs.14,04,816 b) Rs.12,14,816 c) Rs.11,35,816 d) Rs.16,00,816

Answer : a)Rs.14,04,816

Solution:

Here, P = Rs.10,00,000 R1 = 11 R2 = 12 R3 = 13.

Therefore, Amount after 3 years

= p(1 + R1/100)(1 + R2/100)(1 + R3/100)

= 10,00,000 x(1 + 11/100)x(1 + 12/100)x(1 + 13/100)

= 10,00,000 x (111/100) x (112/100) x (113/100)

= 111 x 112 x 113

= 1404816

Hence the total amount after 3 years is Rs.14,04,816.

Question 8

A man lent out Rs.9600 at 9/2 % per annum for a year and 9 months. At the end of the duration, the amount he earned as S.I was:

a) Rs. 567 b) Rs.756   c) Rs.874   d) Rs.784

Answer : b) Rs.756

Solution :

Given that, principal = P = Rs.9600, R = 9/2 % and T = 1 year and 9 months = 1 + 9/12 year = 7/4 years.

Now, we have to find the S.I for 7/4 years.

S.I = PRT/100 = Rs. 9600 x 9/2 x 7/4 x 1/100 = 12 x 9 x 7 = 756

Hence, the required S.I amount is Rs.756

Question 9

A man borrowed Rs.33600 at 25/4 % per annum on September 2012 and he paid back in May 2013. Find the amount he paid as S.I.

a) Rs.2075 b) Rs.2575 c) Rs.1575 d) Rs.1975

Answer : c) Rs.1575.

Solution :

Given that, principal = P = Rs. 33600 and R = 25/4 %.

Time duration = From September 2012 to May 2013 = 9 months = 9/12 year = 3/4 year.

S.I = PRT/100 = Rs. 33600 x 25/4 x 3/4 x 1/100 = 21 x 25 x 3 = Rs.1575.

Hence, the answer is Rs.1575.

Question 10

How much time will it take for a sum of Rs. 9000 to yield Rs. 1620 as S.I at 4 1/2 % per annum?

a) 1 year   b) 2 years   c) 3 years   d) 4 years

Answer : d) 4years.

Solution :

Given that, Principal = P = Rs. 9000, S.I = Rs. 1620 and rate R = 4 1/2 % = 9/2 %

We have to find T.

T = S.I x 100/PR = 1620 x 100/9000 x (9/2)

= 162x2 / 9x9 = 4

Therefore, required time is 4 years.