Discount

Q.1. The banker's gain on a certain bill due 6 months hence is Rs.100, the rate of interest being 10% per annum. Find the face value of the bill.

Solution : 1

Banker's gain is interest on T. D.

Therefore , 100 = T. D. × (6/12) × (10/100)

Or, T. D. = Rs.100 × 20 = Rs.2000.

B. D . = T. D. + B. G. = Rs.2000 + Rs.100 = Rs.2100.

B. D. is interest on face value.

Therefore , 2100 = Face value × (6/12) × (10/100)

Face value = 2100 × 20 = Rs.42000.

Q.2. A bill was drawn on 14 th June 2006 at 8 months after date and was discounted on 24 th September 2006 at 5% p.a. If the banker's gain on the basis of simple interest is Rs.3, calculate the sum for which the bill was drawn.

Solution : 2

Date of drawing the bill = 14 th June 2006.

Legal due date = 17 th Feb. 2007.

Date of discounting = 24 th Sept. 2006.

No. of days before maturity = 6 + 31 + 30 + 31 + 31 + 17 = 146 days.

Let the sum for which the bill was drawn be A.

T.D. = Ani/(1 + ni)

B.G. = B.D. – T.D.

= Ani – Ani/(1 + ni)

$=Ani[(1 + ni - 1)/(1 + ni)]$

$= Ani.ni/(1 + ni)$

Therefore, $3 = [A\times(146/365)\times(146/365)\times(5/100)\times(5/100)]/[1 + (146/365)\times(5/100)]$

Or, A = Rs.7,650.

Q.3. Find the Banker's discount and the discounted value of a bill worth Rs.600 drawn on May 15, 2005 for 3 months and discounted on July 20, 2005 at 5% per annum.

Solution : 3

Date of drawing the bill = 15 May 2005

Legal due date = 18 August 2005 [after 3 months + 3 days of grace]

Date of discounting = 20 July 2005

No. of days before maturity date = 11 + 18 = 29 days

Rate of Interest = 5% per annum

Banker's discount = Ani = $600\times(29/365)\times(5/100)$ = Rs.2.38 .

Value of discounted bill = 600 – 2.38 = Rs.597.62 .

Q.4. A bill of exchange for Rs.750.00 was drawn on 3rd April, 2000 payable at 3 months after date. It was discounted on 24thApril, 2000 at 5% per annum. What was the discounted value of the bill ?

Solution : 4

Here we have , i = 5%, A = 750, n = no. of days = 73 days .

B. D. = Ani = $(750 \times 73 \times 5)/(100 \times 365)$ = Rs.7.5

Value of discounted bill = 750 – 7.50 = Rs.742.50 .

Q.5. A bill for Rs. 84,150 is drawn on April 2002 at 11 months and is discounted on 11th January 2003. Find the banker's gain if the rate of interest is 10%.

Solution : 5

Amount = Rs. 84,150 , Rate = 10% = 0.1. Legally due date = 25 March 2003. Discounted on 11 Jan, 2003.

Remaining period = 20 + 28 + 25 = 73 days = 73/365 = 1/5 year.

B.D. = Ani = $84150 \times 1/5 \times 0.1$ = Rs.1683.

T.D. = Ani/(1 + ni) = 1683/(1 + 0.1/5) = Rs.1650.

Therefore, B.G. = B.D. – T.D. = 1683 – 1650 = Rs. 33.