

## Discount

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**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 ,  $100 = T. D. \times (6/12) \times (10/100)$

Or,  $T. D. = Rs.100 \times 20 = Rs.2000.$

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

B. D. is interest on face value.

Therefore ,  $2100 = \text{Face value} \times (6/12) \times (10/100)$

Face value =  $2100 \times 20 = Rs.42000.$

**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.

$T.D. = \text{Ani}/(1 + ni)$

$B.G. = B.D. - T.D.$

$= \text{Ani} - \text{Ani}/(1 + ni)$

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

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

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

$$\text{Or, } A = \text{Rs.}7,650.$$

**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 =  $Ani = 600 \times (29/365) \times (5/100) = \text{Rs.}2.38$  .

Value of discounted bill =  $600 - 2.38 = \text{Rs.}597.62$  .

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

**Solution : 4**

Here we have ,  $i = 5\%$ ,  $A = 750$ ,  $n = \text{no. of days} = 73 \text{ days}$  .

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

Value of discounted bill =  $750 - 7.50 = \text{Rs.}742.50$  .

**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. =  $Ani = 84150 \times 1/5 \times 0.1 = \text{Rs.}1683.$

T.D. =  $Ani/(1 + ni) = 1683/(1 + 0.1/5) = \text{Rs.}1650.$

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