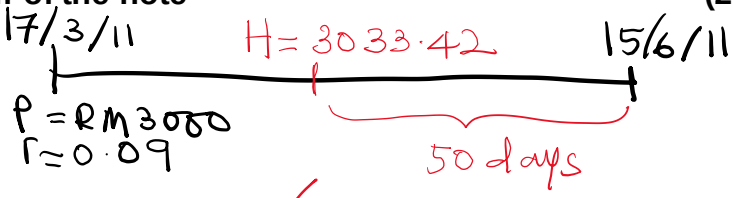
TUTORIAL: PROMISSORY NOTES & BANK DISCOUNT

1) Damia received a note with an interest rate of 9% per annum on 17 March 2011. The face value of the note was RM 3,000 and maturity date was 15 June 2011. Find

i) the term of the note (2 marks)



17-31 March 14 days
1-30 April 30
1-31 May 31
1-15 June 15
90 days

∴ Terms of the note is 90 days.

ii) the maturity values (2 marks)

$$S = P(1 + rt)$$
$$= 3000(1 + 0.09(\tfrac{90}{360}))$$
$$= RM3067.50$$

iii) Assume that 50 days before maturity date of the note, Damia had the note discounted and received RM 3033.42. Find the discount date and the discount rate that was charged. (4 marks)

26-30 Apr 4
1-31 May 31
1-15 Jun 15
50 days

∴ Discount date
26 Apr 2011

$$H = S(1 - dt)$$

$$3033.42 = 3067.50\left(1 - d\left(\frac{50}{360}\right)\right)$$

$$8\% = d$$

iv) the simple interest rate earned by the bank which is equivalent to the discount rate. (2 marks)

$$r = \frac{d}{1 - dt}$$

$$= \frac{0.08}{1 - 0.08\left(\frac{50}{360}\right)} = 8.09\%$$

2) Tai Sing Auto Company received a note dated 15 December 2005, with a face value of RM 4,800. The note matured on 15 March 2006 with a total interest of RM 96.00. If the company discounted the note at 7% discount rate on 30 January 2006, find

i) the term of the note (2 marks)

15/12/05 — 30/1/06 — 15/3/06

P = RM4800 d = 0.07 I = RM 96

15 – 31	Dec	16 days
1 – 31	Jan	31
1 – 28	Feb	28
1 – 15	March	15
		90 days

∴ The term of the note is 90 days.

ii) the maturity values **(2 marks)**

$S = P + I$

$= 4800 + 96$

$= RM\ 4896$ #

iii) the simple interest rate of the note **(2 marks)**

$I = Prt$

$96 = 4800\, r \left(\frac{90}{360}\right)$

$8\% = r$ #

iv) the bank discount **(3 marks)**

30-31 Jan 1 days

1-28 Feb 28

1-15 March 15

44 days

$D = S\,dt$

$= 4896\,(0.07)\left(\frac{44}{360}\right)$

$= RM\ 41.89$ #

v) the proceeds **(3 marks)** 2m

$H = S - D$

$= 4896 - 41.89$

$= RM\ 4854.11$ #

3) **Arissa needs RM10,500 now. Find the amount she should borrow for 140 days from a bank that charges 9% bank discount. (3 marks)**

$H = RM10,500$ $\quad S = ?$

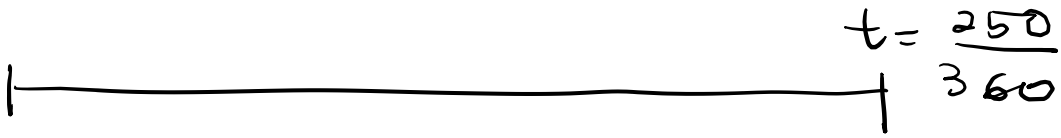
$d = 0.09$

$$H = S(1 - dt)$$

$$10,500 = S\left(1 - 0.09\left(\frac{140}{360}\right)\right)$$

$$RM\ 10880.83 = S$$ #

4) **Mamat took a loan to buy his dream motorbike listed RM13,500. If he wants to pay back the loan in 250 days with 8% bank discount, what is the amount of money he should borrow from the bank? (3 marks)**



$H = RM13,500$ $\quad S = ?$

$d = 0.08$

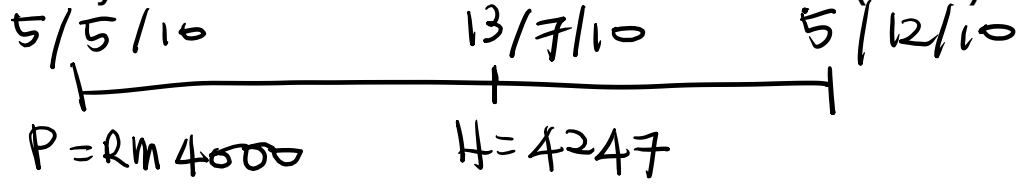
$$H = S(1 - dt)$$

$$13,500 = S\left(1 - 0.08\left(\frac{250}{360}\right)\right)$$

$$RM\ 14,294.12 = S$$ #

5) **On 5 May 2010, Shazelin received a 7-month promissory note valued at RM 4,000 with a simple interest rate of 15%. On 13 July 2010, she discounted the note and received proceeds of RM 4,247. Find the**

i) **maturity date.** **(1 mark)**



5th May + 7 months = 5th of Dec

∴ Maturity Date on 5th of Dec 2010 ✱

ii) **amount of bank discount.** **(5 marks)**

$S = P(1+rt)$

$= 4000\left(1 + 0.15\left(\frac{7}{12}\right)\right)$

$= RM\ 4350$

$\therefore D = S - H = 4350 - 4247 = RM\ 103$ ✱

iii) **discount period.** **(2 marks)**

13–31	July	18 days
1–31	Aug	31
1–30	Sept	30
1–31	Oct	31
1–30	Nov	30
1–5	Dec	5
		145 days

∴ Discount period is 145 days ✱

iv) discount rate. **(2 marks)**

$$D = S\,dt$$

$$103 = 4350\,(d)\left(\frac{145}{360}\right)$$

$$5.88\% = d$$

v) the interest rate that is equivalent to the discount rate in (iv). **(2 marks)**

$$r = \frac{d}{1 - dt}$$

$$= \frac{0.0588}{1 - 0.0588\left(\frac{145}{360}\right)}$$

$$= 6.02\%$$

6) **Ella received a 120-day promissory note for RM20, 000 which matures on 2nd August 2008 with simple interest rate of 15% per annum. She later discounted the note 60 days before the maturity date and obtained RM20, 138.24. Find**

i) **the date of the note** **(2 marks)**

$t = \frac{120}{360}$

2/8/08

$P = RM\ 20,000$

$r = 0.15$

$H = 20138.24$ 60 days

4 – 30 Apr 26 ✓

1 – 31 May 31

1 – 30 Jun 30 } ✓

1 – 31 July 31

1 – 2 Aug 2 days

120 days

The date of the note on 4th of April 08 ✗

ii) **the maturity value of the note** **(3 marks)**

$S = P(1 + rt)$

$= 20,000\left(1 + 0.15\left(\frac{120}{360}\right)\right)$

$= RM\ 21,000$ ✗

iii) the discount date **(2 marks)**

3 – 30 Jun 27 ✓

1 – 31 July 31 ✓

1 – 2 Aug 2 days ✓

60 days

∴ Discount Date on 3rd of June 2008 ✓ *

iv) the bank discount rate **(2 marks)**

$H = S(1 - dt)$

$20138.24 = 21000\left(1 - d\left(\frac{60}{360}\right)\right)$ ✓ ✓ ✓

$24.62\% = d$ ✓

v) the bank discount **(2 marks)**

$D = S - H$

$= 21000 - 20138.24$ ✓ ✓

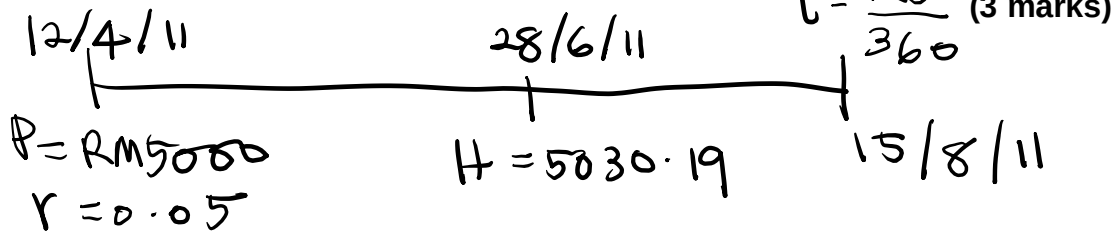
$= RM\,861.76$ ✓ ✓ *

vi) **the simple interest rate earned by the bank which is equivalent to the discount rate** **(2 marks)**

$$r = \frac{d}{1 - dt} = \frac{0.2462}{1 - 0.2462\left(\frac{60}{360}\right)} = 25.67\%$$

7) Aril received a 125-day promissory note for RM5000 dated on 12 April 2011. The simple interest rate was 5%. He later discounted the note on 28th June 2011 and received proceeds of RM5030.19. Find:

i) the maturity date of the note **(3 marks)**



12 - 30 Apr 18 days

1 - 31 May 31

1 - 30 Jun 30

1 - 31 July 31

1 - 15 Aug 15

125 days

∴ the maturity date on 15th Aug 2011

ii) the maturity value of the note

(3 marks)

$$S = P(1+rt)$$
$$= 5000\left(1 + 0.05\left(\frac{125}{360}\right)\right)$$
$$= \text{RM } 5086.81$$

iii) the discount rate

(4 marks)

28-30 Jun 2 days
1-31 July 31
1-15 Aug 15
48 days

$$H = S(1-dt)$$
$$5630.19 = 5086.81\left(1 - d\left(\frac{48}{360}\right)\right)$$
$$8.85\% = d$$