

**SUGGESTED ANSWER SET 1**  
**TEST MAT112 - 25% (DECEMBER 2022)**

QUESTION	ANSWER	MARKS																					
1 a) i)	<p><math>P = \text{RM}1,640, \quad I = \text{RM}580.56, \quad t = 6</math></p> <p><math>I = Prt</math></p> <p><math>580.56 = 1,640 \times r \times 6 \quad \text{M1}</math></p> <p><math>r = \frac{580.56}{1,640 \times 6} \quad \text{M1}</math></p> <p><math>r = 0.059 \times 100\%</math></p> <p><math>r = 5.9\% \quad \text{A1}</math></p> <p>OR</p> <p><math>S = P(1 + rt)</math></p> <p><math>1,640 + 580.56 = 1,640(1 + 6r) \quad \text{M1}</math></p> <p><math>\frac{2,220.56}{1,640} = 1 + 6r</math></p> <p><math>r = \frac{1.354 - 1}{6} \quad \text{M1}</math></p> <p><math>r = 0.059 \times 100\%</math></p> <p><math>r = 5.9\% \quad \text{A1}</math></p>	3																					
1 a) ii)	<p><math>S = P + I</math></p> <p><math>= 1,640 + 580.56 \quad \text{M1}</math></p> <p><math>= \text{RM}2,220.56 \quad \text{A1}</math></p>	2																					
1 b) i)	<table><tr><th>Month</th><th>No. of days</th><td rowspan="2"><b>M1</b></td></tr><tr><td>February</td><td>29 – 14 = 15</td></tr><tr><td>March</td><td>31</td><td rowspan="4"><b>M1</b></td></tr><tr><td>April</td><td>30</td></tr><tr><td>May</td><td>31</td></tr><tr><td>June</td><td>30</td></tr><tr><td>July</td><td>31</td><td rowspan="3"><b>A1</b></td></tr><tr><td>August</td><td>3</td></tr><tr><td>Total</td><td>171 days</td></tr></table>	Month	No. of days	<b>M1</b>	February	29 – 14 = 15	March	31	<b>M1</b>	April	30	May	31	June	30	July	31	<b>A1</b>	August	3	Total	171 days	3
Month	No. of days	<b>M1</b>																					
February	29 – 14 = 15																						
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1 b) ii)	$S = \text{RM}14,873.45, \quad r = 7.24\% = 0.0724, \quad t = \frac{171}{360}$ $S = P(1 + rt) \quad \text{B1}$ $14,873.45 = P \left[ 1 + 0.0724 \left( \frac{171}{360} \right) \right] \quad \text{M2}$ $P = \frac{14,873.45}{1 + 0.0724 \left( \frac{171}{360} \right)}$ $P = \text{RM}14,378.96 \quad \text{A1}$	4												
1 b) iii)	$I = S - P \quad \text{B1}$ $= 14,873.45 - 14,378.96 \quad \text{M1}$ $= \text{RM}494.49 \quad \text{A1}$ <p style="text-align: center;">OR</p> $I = Prt \quad \text{B1}$ $= 14,378.96 \times 0.0724 \times \frac{171}{360} \quad \text{M1}$ $= \text{RM}494.49 \quad \text{A1}$	3												
TOTAL MARKS Q1 = 15 MARKS														
2 a)	$\text{Proceeds, } H = S(1 - dt)$ $= 10,000 \left[ 1 - 0.0475 \left( \frac{150}{360} \right) \right] \quad \text{M2}$ $= \text{RM}9,802.08 \quad \text{A1}$ $D = S - \text{Proceeds}$ $= 10,000 - 9,802.08 \quad \text{M1}$ $= \text{RM}197.92 \quad \text{A1}$	5												
2 b) i)	<table><tr><th>Month</th><th>No. of days</th></tr><tr><td>September, 25</td><td>25</td></tr><tr><td>August</td><td>31</td></tr><tr><td>July</td><td>31</td></tr><tr><td>June, 7</td><td>23</td></tr><tr><td>Total</td><td>110 days</td></tr></table> <p style="text-align: right;">M1</p> <p style="text-align: right;">M1</p> <p style="text-align: center;">Date of the note: 7 June 2021 A1</p>	Month	No. of days	September, 25	25	August	31	July	31	June, 7	23	Total	110 days	3
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September, 25	25													
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Total	110 days													

2 b) ii)	$S = P(1 + rt)$ $= 9,000 \left[ 1 + 0.044 \left( \frac{110}{360} \right) \right] \quad \text{M2}$ $= \text{RM}9,121 \quad \text{A1}$	3
2 b) iii)	$\text{Proceeds} = S(1 - dt)$ $9,045 = 9,121 \left[ 1 - d \left( \frac{30}{360} \right) \right] \quad \text{M2}$ $\frac{9045}{9121} = 1 - \frac{30}{360}d$ $0.99166758 = 1 - \frac{30}{360}d \quad \text{M1}$ $\frac{30}{360}d = 0.00833242$ $d = 0.1 \times 100\%$ $d = 10\% \quad \text{A1}$	4
<b>TOTAL MARKS Q2 = 15 MARKS</b>		
3 a)	$i = \frac{k}{m} = \frac{0.038}{2} = 0.019 \quad \text{B1}$ $S = P(1 + i)^n$ $11,007.55 = 8,300(1 + 0.019)^n \quad \text{M1}$ $\frac{11,007.55}{8,300} = (1.019)^n$ $\log\left(\frac{11,007.55}{8,300}\right) = n \log(1.019) \quad \text{M1}$ $n = \frac{\log\left(\frac{11,007.55}{8,300}\right)}{\log(1.019)} \quad \text{M1}$ $n = 15 \quad \text{A1}$ $n = mt$ $15 = 2t \quad \text{M1}$ $t = 7.5 \text{ years} \quad \text{A1}$	7

3 b)	$i = \frac{k}{m} = \frac{0.056}{4} = 0.014$ <p>Find present value for the next 7 years:  <math>n = mt = 4(7) = 28</math> <b>B1 – Correct i and n</b></p> $S_1 = P_1(1+i)^n$ $6444.29 = P_1(1+0.014)^{28}$ <b>M1</b> $P_1 = \text{RM}4,366$ <b>A1</b> <p>Find future value for the first 6 years:  <math>S = P_1 + 520</math>  <math>= 4,366.29 + 520</math> <b>M1</b>  <math>= \text{RM}4,886.</math> <b>A1</b></p> <p>Find present value for the first 6 years:  <math>n = mt = 4(6) = 24</math> <b>B1 – Correct i and n</b></p> $S = P(1+i)^n$ $4,886.29 = P(1+0.014)^{24}$ <b>M1</b> $P = \text{RM}3,500$ <b>A1</b>	8
TOTAL MARKS Q3 = 15 MARKS		