

SUGGESTED ANSWER SET 2
TEST MAT112 - 25% (DECEMBER 2022)

QUESTION	ANSWER	MARKS																					
1 a) i)	<p>$P = \text{RM}5,000, I = \text{RM}1,081.50, r = 7.21\% = 0.0721$</p> <p>$I = Prt$</p> <p>$1,081.50 = 5,000 \times 0.0721 \times t$ M1</p> <p>$t = \frac{1,081.50}{5,000 \times 0.0721}$ M1</p> <p>$t = 3 \text{ years}$ A1</p> <p>OR</p> <p>$S = P(1 + rt)$</p> <p>$5,000 + 1,081.50 = 5,000(1 + 0.0721 t)$ M1</p> <p>$6,081.50 = 5,000 + 360.5 t$</p> <p>$1,081.50 = 360.5t$</p> <p>$t = \frac{1081.50}{360.5}$ M1</p> <p>$t = 3 \text{ years}$ A1</p>	3																					
1 a) ii)	<p>$S = P + I$</p> <p>$= 5,000 + 1,081.50$ M1</p> <p>$= \text{RM}6,081.50$ A1</p>	2																					
1 b) i)	<table><tr><th>Month</th><th>No. of days</th><td rowspan="2">M1</td></tr><tr><td>January</td><td>31 – 26 = 5</td></tr><tr><td>February</td><td>28</td><td rowspan="4">M1</td></tr><tr><td>March</td><td>31</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><td rowspan="3">A1</td></tr><tr><td>July</td><td>10</td></tr><tr><td>Total</td><td>165 days</td></tr></table>	Month	No. of days	M1	January	31 – 26 = 5	February	28	M1	March	31	April	30	May	31	June	30	A1	July	10	Total	165 days	3
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January	31 – 26 = 5																						
February	28	M1																					
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1 b) ii)	$S = \text{RM}3,044, \quad r = 3.2\% = 0.032, \quad t = \frac{165}{360}$ $S = P(1 + rt) \quad \text{B1}$ $3,044 = P \left[1 + 0.032 \left(\frac{165}{360} \right) \right] \quad \text{M2}$ $P = \frac{3,044}{1 + 0.032 \left(\frac{165}{360} \right)}$ $P = \text{RM}3,000 \quad \text{A1}$	4
1 b) iii)	$I = S - P \quad \text{B1}$ $= 3,044 - 3,000 \quad \text{M1}$ $= \text{RM}44 \quad \text{A1}$ <p style="text-align: center;">OR</p> $I = Prt \quad \text{B1}$ $= 3,000 \times 0.032 \times \frac{165}{360} \quad \text{M1}$ $= \text{RM}44 \quad \text{A1}$	3
TOTAL MARKS Q1 = 15 MARKS		
2 a)	$\text{Proceeds} = \text{RM}5,500, \quad r = 5.5\% = 0.055, \quad t = \frac{36}{12} = 3 \text{ years}$ <p style="text-align: center;">B1: All correct</p> $\text{Proceeds} = S(1 - dt) \quad \text{B1}$ $5500 = S[1 - 0.055(3)] \quad \text{M1}$ $S = \frac{5500}{1 - 0.055(3)} \quad \text{M1}$ $S = \text{RM}6,586.83 \quad \text{A1}$	5

2 b) i)	<table><tr><th>Month</th><th>No. of days</th></tr><tr><td>March, 15</td><td>16</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></tr><tr><td>August, 9</td><td>9</td></tr><tr><td>Total</td><td>147 days</td></tr></table> <p>M1</p> <p>A1</p> <p>$P = \text{RM}17,500, \quad r = 5.3\% = 0.053, \quad t = \frac{147}{360}$</p> <p>$S = P(1 + rt)$</p> <p>$= 17,500 \left[1 + 0.053 \left(\frac{147}{360} \right) \right]$ M2</p> <p>$= \text{RM}17,878.73$ A1</p>	Month	No. of days	March, 15	16	April	30	May	31	June	30	July	31	August, 9	9	Total	147 days	5
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April	30																	
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2 b) ii)	<p>Proceeds = RM17,658.08</p> <p>Discount period = 147 – 70</p> <p>$= 77 \text{ days}$ M1</p> <p>$D = S - \text{Proceeds}$</p> <p>$= 17,878.73 - 17,658.08$ M1</p> <p>$= \text{RM}220.65$ A1</p> <p>$D = Sdt$</p> <p>$220.65 = 17878.73 \times d \times \frac{77}{360}$ M1</p> <p>$d = 5.77\%$ A1</p> <p>OR</p> <p>Discount period = 147 – 70</p> <p>$= 77 \text{ days}$ M1</p>	5																

	$\text{Proceeds} = S(1 - dt)$ $17,658.08 = 17,878.73 \left[1 - d \left(\frac{77}{360} \right) \right] \quad \text{M2}$ $\frac{17,658.08}{17,878.73} = 1 - \frac{77}{360}d$ $0.98765852 = 1 - \frac{77}{360}d \quad \text{M1}$ $\frac{77}{360}d = 0.0123414$ $d = 0.0577 \times 100\%$ $d = 5.77\% \quad \text{A1}$	
TOTAL MARKS Q2 = 15 MARKS		
3 a)	$i = \frac{k}{m} = \frac{0.045}{4} = 0.01125, \quad n = mt = 4(6) = 24 \quad \text{B1}$ $S = P(1+i)^n$ $= 8,000(1 + 0.01125)^{24} \quad \text{M1}$ $= \text{RM}10,463.93 \quad \text{A1}$ $P_1 = S = \text{RM}10,463.93 \quad \text{M1}$ $i = \frac{k}{m} = \frac{0.065}{4} = 0.01625, \quad n = mt = 4(10) = 40 \quad \text{B1}$ $S_1 = P_1(1+i)^n$ $= 10,463.93(1 + 0.01625)^{40} \quad \text{M1}$ $= \text{RM}19,939.63 \quad \text{A1}$	7
3 b) i)	$i = \frac{k}{m} = \frac{k}{2}, \quad n = mt = 2(5) = 10 \quad \text{B1}$	5

	$S = P(1 + i)^n$ $37,640.74 = 30,000 \left(1 + \frac{k}{2}\right)^{10} \quad \text{M1}$ $\frac{37,640.74}{30,000} = \left(1 + \frac{k}{2}\right)^{10} \quad \text{M1}$ $\sqrt[10]{1.2547} = 1 + \frac{k}{2} \quad \text{M1}$ $1.022948 = 1 + \frac{k}{2}$ $0.022948 = \frac{k}{2}$ $k = 0.0459 \times 100\%$ $k = 4.59\% \quad \text{A1}$	
3 b) ii)	$i = \frac{k}{m} = \frac{0.0459}{2} = 0.02295, \quad n = mt = 2(2) = 4 \quad \text{B1}$ $S = P(1 + i)^n$ $= 37,640.74(1 + 0.02295)^4 \quad \text{M1}$ $= \text{RM}41,216.94 \quad \text{A1}$	3
TOTAL MARKS Q3 = 15 MARKS		