

SULIT
1449/2
Matematik
Kertas 2
Peraturan
PEMARKAHAN
Okttober
2021

SKEMA MODUL PERCUBAAN SPM SET 1 2021

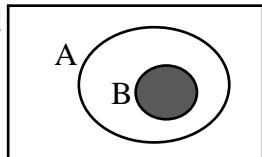
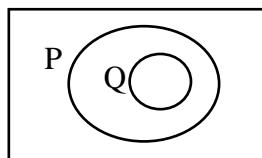
MATEMATIK

Kertas 2

PERATURAN PEMARKAHAN

Peraturan pemarkahan ini mengandungi 11 halaman bercetak

Bahagian A
[40 markah]

No	Peraturan Pemarkahan	Markah	
1.	(a) ε  (b) ε 	1 2	3
2	$x^2 - 3x - 28 = 0$ $(x - 7)(x + 4) = 0$ $x = 7$ Perimeter = 22	1 1 1 1	4
3	$3m + 12n = 42$ @ $6m + 4n = 24$ $-10n = -30$ $n = 3$ $m = 2$	1 1 1 1	4
4	(a) $m = -\frac{1}{2}$ $3 = \left(-\frac{1}{2}\right)(6) + c$ $y = -\frac{1}{2}x + 6$ (b) $0 = -\frac{1}{2}x + 6$ $x = 12$	1 1 1 1	5
5	$8 \times 8 \times 8$ $\frac{1}{3}(8 \times 8)5$ $(8 \times 8 \times 8) + \frac{1}{3}(8 \times 8)5$ $= 618.67$ @ $618\frac{2}{3}$	1 1 1 1	4

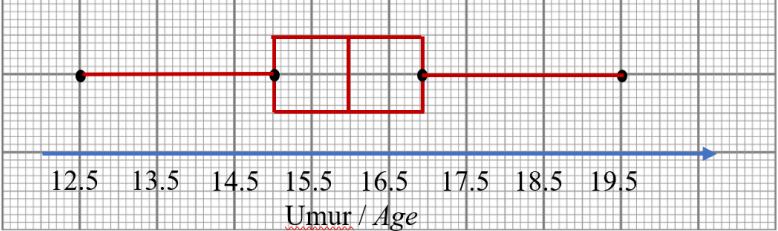
No	Peraturan Pemarkahan	Markah																								
6	$\frac{30}{360} \times \frac{22}{7} \times 7^2 @ \frac{60}{360} \times \frac{22}{7} \times 14^2 @ \frac{60}{360} \times \frac{22}{7} \times 7^2$ $\frac{60}{360} \times \frac{22}{7} \times 14^2 - \frac{60}{360} \times \frac{22}{7} \times 7^2 + \frac{30}{360} \times \frac{22}{7} \times 7^2$ $89 \frac{5}{6} @ 89.83$	1 1 1 3																								
7	$\begin{pmatrix} 2 & 4 \\ 3 & 5 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 26 \\ 35 \end{pmatrix}$ $\begin{pmatrix} x \\ y \end{pmatrix} = -\frac{1}{2} \begin{pmatrix} 5 & -4 \\ -3 & 2 \end{pmatrix} \begin{pmatrix} 26 \\ 35 \end{pmatrix}$ $\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 5 \\ 4 \end{pmatrix}$ $x = 5, y = 4$	1 1 1,1 4																								
8	(a) $\frac{1}{2}(12+6) 10 + \frac{1}{2}(10+22) 6$ $\frac{186}{18}$ 10.33 (b) Motorsikal bergerak dengan laju seragam 10ms^{-1}	1 1 1 1 4																								
9	(a) 20% daripada 30 ialah 6 jika dan hanya jika $0.2 \times 30 = 60$ (b) (i) 15 ialah gandaan 3 (ii) sah dan tidak munasabah	1 1 1,1 4																								
10	(a) <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th></th> <th>A</th> <th>B</th> <th>C</th> </tr> <tr> <td>1</td> <td>(1,A)</td> <td>(1,B)</td> <td>(1,C)</td> </tr> <tr> <td>2</td> <td>(2,A)</td> <td>(2,B)</td> <td>(2,C)</td> </tr> <tr> <td>3</td> <td>(3,A)</td> <td>(3,B)</td> <td>(3,C)</td> </tr> <tr> <td>4</td> <td>(4,A)</td> <td>(4,B)</td> <td>(4,C)</td> </tr> <tr> <td>5</td> <td>(5,A)</td> <td>(5,B)</td> <td>(5,C)</td> </tr> </table> (b)(i) $\{(1,B), (1,C), (2,B), (2,C), (3,B), (3,C)\}$ $\frac{6}{15}$ (ii) $\{(1,A), (2,A), (3,A), (4,A), (4,B), (4,C), (5,A), (5,B), (5,C)\}$ $\frac{9}{15}$		A	B	C	1	(1,A)	(1,B)	(1,C)	2	(2,A)	(2,B)	(2,C)	3	(3,A)	(3,B)	(3,C)	4	(4,A)	(4,B)	(4,C)	5	(5,A)	(5,B)	(5,C)	1 1 1 1 5
	A	B	C																							
1	(1,A)	(1,B)	(1,C)																							
2	(2,A)	(2,B)	(2,C)																							
3	(3,A)	(3,B)	(3,C)																							
4	(4,A)	(4,B)	(4,C)																							
5	(5,A)	(5,B)	(5,C)																							

Bahagian B
[45 markah]

No	Peraturan Pemarkahan	Markah	
11 (a)	-8 2.7	1 1	2
(b)	<u>Graph</u> Axes drawn in correct directions with uniform scales for $-4 \leq x \leq 4$ and $-8 \leq y \leq 8$. All 6 points and *2 points correctly plotted or the curve passes through all the points for $-4 \leq x \leq 4$ and $-8 \leq y \leq 8$. <u>Note :</u> 6 or 7 points correctly plotted, award K1 Smooth and continuous curve without any straight line passing through all 8 correct points using the given scales for $-4 \leq x \leq 4$ and $-8 \leq y \leq 8$.	1 2	
(c) (i)	-1.7 ± 0.1	1	
(ii)	3.1 ± 0.1	1	2
			9
12 (a)	Correct shape with triangle ABE and rectangle BLHG. All solid lines. $EB > BA > BL = EG > GB$ Measurements correct to ± 0.2 cm (one way) and all right angles at vertices $= 90^\circ \pm 1^\circ$.	1 1 2	4

No	Peraturan Pemarkahan	Markah
(b)		
	Correct shape with rectangle LKJH and triangle MJE.	1
	All solid lines.	1
	(Ignore LM)	1
	L – M is joined by a dashed line to form trapezium LKJM.	1
	$LK = KE > EJ = JM > MH = HL$	2
	Measurements correct to ± 0.2 cm (one way) and all right angles at vertices = $90^\circ \pm 1^\circ$.	5
		9

No	Peraturan Pemarkahan	Markah
13 (a)	$(65000 \times 0.1) \div 8$ 812.50	1 1
(b) (i)	Pelan kewangan Seon Ho/ <i>Seon Ho's financial plan</i>	2
	Butiran/Details	(RM)
	Gaji bersih/ <i>Net Salary</i>	7500
	Gaji guru komputer/ <i>Computer teacher salary</i>	500
	Pendapatan pasif sewa bulanan/ <i>Passive monthly rental income</i>	800
	Jumlah pendapatan bulanan/ Total Monthly income	8800
	Tolak simpanan tetap bulanan	750
	Baki pendapatan/ <i>Income Balance</i>	8050
	Tolak perbelanjaan tetap bulanan/ <i>Deduct monthly fixed expenses</i>	
	Ansuran pinjaman rumah (1)/ <i>Home Loan Installment(1)</i>	970
	Ansuran pinjaman rumah (2)/ <i>Home Loan Installment(2)</i>	890
	Ansuran kereta/ <i>Car installments</i>	1300
	Premium insurans/ <i>Insurance premium</i>	540
	Jumlah perbelanjaan tetap bulanan/ <i>Monthly fixed expenses</i>	3700
	Tolak jumlah perbelanjaan tidak tetap bulanan/ <i>Deduct monthly non- fixed expenses</i>	
	Perbelanjaan makanan/ <i>Food Expenses</i>	950
	Utiliti rumah/ <i>Home utilities</i>	450
	Percutian & pelancongan/ <i>Holidays &tourism</i>	800
	Tol dan petrol/ <i>Toll and petrol</i>	300
	Elaun ibu bapa bulanan/ <i>Monthly parental allowance</i>	1200
	Jumlah perbelanjaan tidak tetap / <i>Monthly non- fixed expenses</i>	3700
	Pendapatan lebihan/Surplus income	650
(ii)	Terdapat lebihan pendapatan sebanyak RM650 bagi pelan kewangan peribadi Seon Ho iaitu aliran tunai positif. Jumlah pendapatan melebihi perbelanjaan menyebabkan kecairan aset yang baik.	7 9
	<i>There is a surplus of RM650 for Seon Ho's personal financial plan, which is a positive cash flow. Total income exceeds expenses resulting in good asset liquidity.</i>	

No	Peraturan Pemarkahan	Markah										
14 (a)	<p>Q – Putaran 90° ikut arah jam, pada pusat (1, 2) <i>A clockwise rotation of 90° about the centre (1, 2)</i></p> <p><u>Note :</u></p> <ol style="list-style-type: none"> Putaran 90° ikut arah jam atau Putaran, pusat (1, 2) // <i>A clockwise rotation of 90° or Rotation, centre (1, 2), beri P2</i> Putaran // Rotation , beri 1markah <p>P – Pembesaran, faktor skala 2, pusat (3, 5)@E <i>Enlargement, scale factor 2, centre (3, 5)@E</i></p> <p><u>Note :</u></p> <ol style="list-style-type: none"> Pembesaran, faktor skala 2 atau Pembesaran, pusat (3, 5) // <i>Enlargement, scale factor 2 or Enlargement, centre (3, 5), beri P2.</i> Pembesaran // Enlargement , beri 1markah 	3										
(b)	$\frac{54}{*2^2 - 1}$ <p><u>Note :</u> $54 = *2^2x - x$, beri K1</p> <p>18</p>	2 3 1 9										
15 (a)	<p>(i) Bentuk loceng</p> <p>(ii) Pencong ke kiri</p> <p>(iii) Masa larian 100 m (L16) terserak lebih luas berbanding 100 m (L18).</p>	1 1 1										
(b) (i)		2										
(ii)	<table border="1"> <tr> <td>Nilai minimum</td> <td>12.5</td> </tr> <tr> <td>Q_1</td> <td>15</td> </tr> <tr> <td>Median</td> <td>16</td> </tr> <tr> <td>Q_3</td> <td>16.9</td> </tr> <tr> <td>Nilai maksimum</td> <td>19.5</td> </tr> </table>	Nilai minimum	12.5	Q_1	15	Median	16	Q_3	16.9	Nilai maksimum	19.5	1
Nilai minimum	12.5											
Q_1	15											
Median	16											
Q_3	16.9											
Nilai maksimum	19.5											
(iii)	<p>Garis menyambungkan nilai minimum dengan Q_1, Q_3 dengan nilai maksimum dan garis membentuk kotak.</p> <p>Julat = 7</p> <p>Julat antara kuartil = 1.9</p> <p>Taburan simetri</p>	1 5 1 10										

Bahagian C

No	Peraturan Pemarkahan	Markah
16(a)(i)	$x + y \leq 60$ $y - x \geq 20$	1 1
(ii)	20	1
b)	<ul style="list-style-type: none"> Murid melukis 6 bucu Murid melukis 2 atau lebih garaf tidak terarah ii) Bilangan Darjah = 8×2 $= 16$	4
c)	i) Jumlah Insurans yang harus dibeli $\frac{80}{100} \times \text{RM } 550\,000 = \text{RM } 440\,000$ ii) a) Bayaran pampasan = $\text{RM } 80\,000 - \text{RM } 5\,000$ $\text{RM } 75\,000$ b) i) $\frac{\text{RM } 350\,000}{\text{RM } 440\,000} \times \text{RM } 80\,000 - \text{RM } 5\,000$ $\text{RM } 58\,636.36$ iii) $\text{RM } 400\,000 - \text{RM } 5\,000$ $\text{RM } 395\,000$	8

No	Peraturan Pemarkahan	Markah
17(a)	<p>Pendapatan bercukai $= \text{RM } 44\,400 - \text{RM } 500 - \text{RM } 12\,530$ $= \text{RM } 31\,370$</p> <p>Cukai pendapatan $= \text{RM } 150 + (\text{RM } 11\,370 \times 0.03) - \text{RM } 400$ $= \text{RM } 491.10 - \text{RM } 400$ $= \text{RM } 91.10$</p> <p>$(\text{RM } 70 \times 12) - \text{RM } 91.10$ $= \text{RM } 748.90$</p> <p>$\text{PCB} > \text{Cukai}$. Encik Talib tidak perlu menambah bayaran cukai pendapatan. Dia mendapat lebihan sebanyak RM 748.90.</p>	1 1 1 1 1 1 1 1
(b)	$x + y = 625 @$ $\frac{3}{2}x - y = 0$ $y = \frac{3}{2}x$ atau $3x - 2y = 0$ $\begin{pmatrix} 1 & 1 \\ \frac{3}{2} & -1 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 625 \\ 0 \end{pmatrix}$ $\begin{pmatrix} x \\ y \end{pmatrix} = \frac{1}{1(-1) - (\frac{3}{2})(1)} \begin{pmatrix} -1 & -1 \\ \frac{3}{2} & 1 \end{pmatrix} \begin{pmatrix} 625 \\ 0 \end{pmatrix}$ $\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 250 \\ 375 \end{pmatrix}$ $x = \text{RM } 250, y = \text{RM } 375$	1 1 1 1 1 1 1 1
(c)	i) 15 minit $1.5 + 1.5 = 3 \text{ km}$ Laju purata = $\frac{3}{1.5}$ i) $= 2 \text{ kmj}^{-1}$	1 1 1 1 1 1

LAMPIRAN

Graf $y = \frac{8}{x}$

