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**MATHEMATICS**

**March,**

**Form 1**

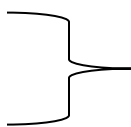
**MARKING SCHEME**

**MATHEMATICS**

## SECTION I (30 MARKS)

NO	WORKING	MARKS	REMARKS																				
1.	(a) 10 010 (b) 102 365 478 001	B1 B1																					
		2																					
2.	(a) 7 532  (b) Total value = $5 \times 100$ $= 500$	B1  A1																					
		2																					
3.	<p><b>7056</b></p> <table style="border-collapse: collapse;"> <tr><td style="border-right: 1px solid black; padding-right: 5px;">2</td><td style="padding-left: 5px;">7056</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">2</td><td style="padding-left: 5px;">3528</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">2</td><td style="padding-left: 5px;">1764</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">2</td><td style="padding-left: 5px;">882</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">3</td><td style="padding-left: 5px;">441</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">3</td><td style="padding-left: 5px;">147</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">7</td><td style="padding-left: 5px;">49</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">7</td><td style="padding-left: 5px;">7</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;"></td><td style="padding-left: 5px;">1</td></tr> </table> <p><math>7056 = 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 7 \times 7</math> <math>= 2^4 \times 3^2 \times 7^2</math></p>	2	7056	2	3528	2	1764	2	882	3	441	3	147	7	49	7	7		1	M1 (Table)  M1 A1			
2	7056																						
2	3528																						
2	1764																						
2	882																						
3	441																						
3	147																						
7	49																						
7	7																						
	1																						
		3																					
4.	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>3</td><td>9</td><td>15</td><td>21</td></tr> <tr><td>3</td><td>3</td><td>5</td><td>7</td></tr> <tr><td>5</td><td>1</td><td>5</td><td>7</td></tr> <tr><td>7</td><td>1</td><td>1</td><td>7</td></tr> <tr><td></td><td>1</td><td>1</td><td>1</td></tr> </table> <p><math>7 \times 5 \times 3 \times 3 = 315</math> minutes = <math>\frac{315}{60} = 5</math> hrs 15 minutes</p> <p>11.00 pm – 5 hrs 15 minutes</p> <p>10.45 p.m</p>	3	9	15	21	3	3	5	7	5	1	5	7	7	1	1	7		1	1	1	M1  M1 A1	
3	9	15	21																				
3	3	5	7																				
5	1	5	7																				
7	1	1	7																				
	1	1	1																				
		3																					

5.	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 5px;">2</td> <td style="padding: 5px;">108</td> <td style="padding: 5px;">168</td> <td style="padding: 5px;">180</td> </tr> <tr> <td style="padding: 5px;">2</td> <td style="padding: 5px;">54</td> <td style="padding: 5px;">84</td> <td style="padding: 5px;">90</td> </tr> <tr> <td style="padding: 5px;">3</td> <td style="padding: 5px;">27</td> <td style="padding: 5px;">42</td> <td style="padding: 5px;">45</td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;">9</td> <td style="padding: 5px;">14</td> <td style="padding: 5px;">15</td> </tr> </table> <p style="margin-left: 20px;">Largest container = <math>2 \times 2 \times 3</math> = 12 litres</p>	2	108	168	180	2	54	84	90	3	27	42	45		9	14	15	M1  M1 A1	
2	108	168	180																
2	54	84	90																
3	27	42	45																
	9	14	15																
		3																	
6.	<p><u>1 478 019</u> (1+7+0+9) – (4+8+1) 17 – 13 = 4</p> <p>Therefore 1 478 019 is <u>not divisible</u> by 11</p>	M1  A1																	
		2																	
7.	<p>NUMERATOR -4 + 84 + 10 = 90</p> <p>DENOMINATOR <math>6 \times 3 = 18</math></p> <p>QUOTIENT <math>\frac{90}{18} = 5</math></p>	M1  M1  A1																	
		3																	
8.	<p><math>\frac{1}{3}</math> of <math>\frac{7}{12} \div \frac{1}{12}</math></p> <p><math>\frac{1}{3} \times \frac{7}{12} = \frac{7}{36}</math></p> <p><math>\frac{7}{36} \div \frac{1}{12} = \frac{7}{36} \times \frac{12}{1} = \frac{7}{3}</math></p> <p style="text-align: right;"><math>2\frac{1}{3}</math></p>	M1  A1	The final answer must be a mixed number.																
		2																	

9.	<p>Let <math>x = 0.2\dot{3}</math></p> $10x = 2.333333\dots$ $100x = 23.333333\dots$  $100x - 10x = 23.333333\dots - 2.333333\dots$ $90x = 21$ $x = \frac{21}{90} = \frac{7}{30}$	M1 M1 A1	
		3	
10.	$\sqrt{0.792} = \sqrt{79.2 \times 10^{-2}}$ $= 8.899 \times \frac{1}{10}$ $= 0.8899$	M1 M1 A1	
		3	
11.	$\sqrt{\frac{0.0625 \times 2.56 \times 10^6}{0.25 \times 0.08 \times 0.5 \times 10^6}}$ $= \sqrt{\frac{625 \times 256}{25 \times 8 \times 50}}$ $= \sqrt{16}$ $= 4$	M1 M1 M1 A1	
		4	

## SECTION II (20 marks)

NO	WORKING	MARKS	REMARKS
12.	<p>(a) School fees = <math>\frac{1}{4}</math></p> <p>Remainder = <math>\frac{4}{4} - \frac{1}{4} = \frac{3}{4}</math></p> <p>Electricity and water = <math>\frac{1}{4}</math> of <math>\frac{3}{4} = \frac{1}{4} \times \frac{3}{4} = \frac{3}{16}</math></p> <p>Fees + electricity and water = <math>\frac{1}{4} + \frac{3}{16} = \frac{7}{16}</math></p> <p>Remainder = <math>\frac{16}{16} - \frac{7}{16} = \frac{9}{16}</math></p> <p>Transport = <math>\frac{1}{9}</math> of <math>\frac{9}{16} = \frac{1}{9} \times \frac{9}{16} = \frac{1}{16}</math></p> <p>Fees + electricity and water + transport  <math>= \frac{1}{4} + \frac{3}{16} + \frac{1}{16} = \frac{8}{16} = \frac{1}{2}</math></p> <p>Remaining = <math>\frac{1}{2} = 8400</math></p> <p>Total January salary = <math>\frac{2}{1} \times 8400 = \text{shs. } 16\,800</math></p> <p>(b) School fees  <math>= \frac{1}{4} \times 16800</math>  <math>= \text{shs. } 4200</math></p> <p>(c) Transport  <math>= \frac{1}{16} \times 16800</math>  <math>= \text{shs. } 1050</math></p> <p>(d) Water and electricity  <math>= \frac{3}{16} \times 16800</math>  <math>= \text{shs. } 3150</math></p>	<p>M1</p> <p>M1</p> <p>M1</p> <p>A1</p> <p>M1</p> <p>A1</p> <p>M1</p> <p>A1</p> <p>M1</p> <p>A1</p>	
		10	

13.	<p>(a) Number of cartons  <math>= \frac{30\,816}{24}</math>  <math>= 1284</math> cartons</p> <p>(b) Total mass of the empty cartons  <math>1284 \text{ cartons} \times 2\text{kg}</math>  <math>2568\text{kg}</math></p> <p>(c) Total mass of books in one carton  <math>\text{mass of books in one carton} = 12\text{kg} - 2\text{kg}</math>  <math>= 10\text{kg per carton}</math></p> <p>(d) Total mass of all the exercise books  <math>\text{Total mass of all the exercise books} = 1284 \times 10\text{kg}</math>  <math>= 12\,840 \text{ kg}</math></p> <p>(e) Mass of one exercise book  <math>\text{mass of one book} = 10\text{kg} \div 24</math>  <math>= 0.42\text{kg}</math></p>	<p>M1 A1</p> <p>M1 A1</p> <p>M1 A1</p> <p>M1 A1</p> <p>M1 A1</p>	
		10	