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ELEVATE

MATH TOPICAL WORKSHEETS

IGCSE- Int. Mathematics (0607)

Sets,Statistics,Probability and vector Transformations

PAPER-2

Q.1

(a)	$\frac{32}{63}$	**3**	**M2** for $\left(\frac{3}{7}\times\frac{4}{9}\right)+\left(\frac{4}{7}\times\frac{5}{9}\right)$ or **M1** for $\left(\frac{3}{7}\times\frac{4}{9}\right)$ or $\left(\frac{4}{7}\times\frac{5}{9}\right)$
(b)	$\frac{31}{70}$	**3**	**M2** for $\left(\frac{3}{7}\times\frac{5}{10}\right)+\left(\frac{4}{7}\times\frac{4}{10}\right)$ or **M1** for $\left(\frac{3}{7}\times\frac{5}{10}\right)$ or $\left(\frac{4}{7}\times\frac{4}{10}\right)$

Q.2

	$A\cup B'$ oe $P\cap Q'$ oe	**2**	**B1** for each

Q.3

	5	**2**	**M1** for 9×8 or 10×7.7 or better

Q.4

(a)	continuous	**1**	
(b)	40 60 15	**2**	**B1** for 1 correct value in correct place. or **M1** for correct method for finding angle for one student e.g. $15\div5$ or $360\div120$ oe

Q.5

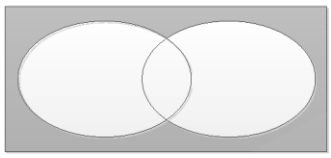
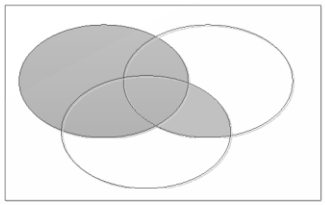
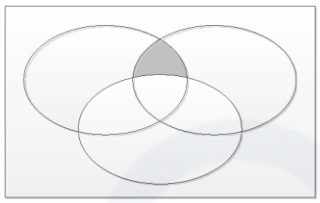
(a)	13	**1**	
(b)	36	**2**	**M1** for 164 seen or indicated

PAPER-2

Q.6

(a)	240	**2**	**M1** for $\frac{120}{360} \times 720$ oe
(b)	180	**2**	**M1** for 360 – (120 + 80 + 70) seen or better

Q.7

(a)		**1**
(b)		**1**
(c)		**1**

Q.8

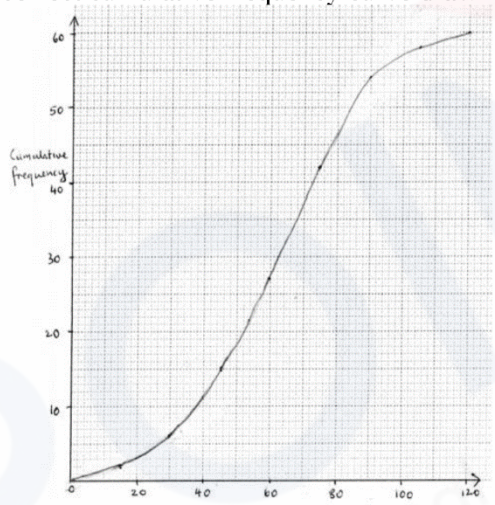
(a)	Negative	**1**	
(b)	12	**2**	**M1** for $14 = 32 - 1.5x$

Q.9

(a)	40, 60 and 80	**2**	**B1** for 2 correct

PAPER-4

Q.1

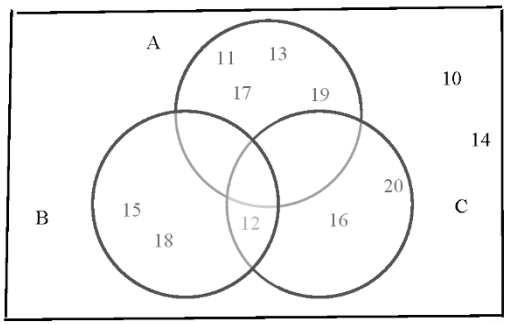
<table>
<tr><td>(a)</td><td>$60 < t \leqslant 75$</td><td>1</td><td></td></tr>
<tr><td>(b)</td><td><table>
<tr><td>$[t \leqslant 15]$</td><td>[2]</td></tr>
<tr><td>$[t \leqslant 30]$</td><td>[6]</td></tr>
<tr><td>$[t \leqslant 45]$</td><td>15</td></tr>
<tr><td>$[t \leqslant 60]$</td><td>27</td></tr>
<tr><td>$[t \leqslant 75]$</td><td>42</td></tr>
<tr><td>$[t \leqslant 90]$</td><td>54</td></tr>
<tr><td>$[t \leqslant 105]$</td><td>58</td></tr>
<tr><td>$[t \leqslant 120]$</td><td>[60]</td></tr>
</table></td><td>1</td><td></td></tr>
<tr><td>(c)</td><td>correct cumulative frequency curve drawn
 
</td><td>3</td><td>B2 for all correct points correctly plotted

OR

B1 for 3, 4 or 5 points correctly plotted
FT their increasing points
B1 for smooth line connecting increasing points</td></tr>
<tr><td>(d)(i)</td><td>62 to 64</td><td>1</td><td></td></tr>
<tr><td>(d)(ii)</td><td>45</td><td>1</td><td></td></tr>
<tr><td>(d)(iii)</td><td>12 to 14</td><td>2</td><td>B1 for 46 to 48 seen
or M1 for 60 – their 47</td></tr>
</table>

PAPER-4

Q.2

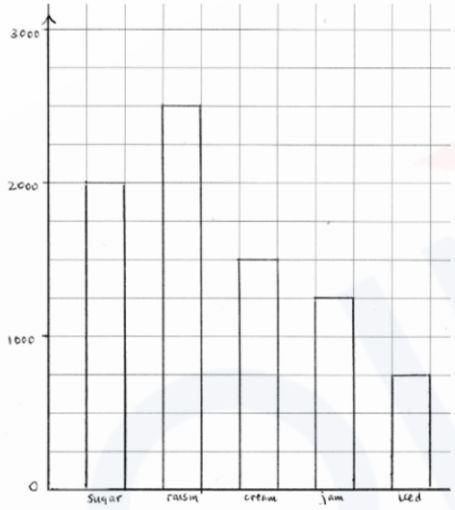
(a)	[A =] 11, 13, 17, 19	**1**	
(b)		**2**	**B1** for at least 8 elements correct
(c)	10, 14, 16, 20	**1**	**FT** their Venn diagram
(d)	6	**1**	**FT** their Venn diagram

Q.3

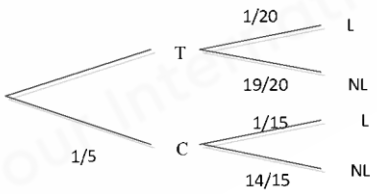
(a)	Correct tree diagram 	**3**	**B2** for 3 or 4 correct probabilities correctly placed **B1** for 2 correct probabilities correctly placed
(b)	$\frac{9}{25}$ oe	**2**	**M1** for $\frac{6}{10} \times their \frac{3}{5}$

PAPER-4

Q.4

(a)	8000	**1**	
(b)	Raisin	**1**	
(c)	500	**1**	
d)	$\frac{5}{32}$ cao	**2**	**B1** for $\frac{1250}{their 8000}$ or $\frac{625}{4000}$ *or* $\frac{250}{1600}$ *or* $\frac{125}{800}$ *or* $\frac{50}{320}$ *or* $\frac{25}{160}$
(e)	6 : 5 : 3	**2**	**B1** for correct cancelation but not in its simplest form
(f)	Correct ruled bar chart 	**2**	**B1** for 3 correct height bars with equal widths or 4 correct height bars with unequal widths
(g)	10.75	**2**	**M1** for 5×1.25 or 3×1.50

Q.5

(a)		**3**	**B1** for each branch
(b)	$\frac{4}{100}$ oe	**2**	**M1FT** for $\frac{4}{5}\times their\ \frac{1}{20}$
(c)	$\frac{71}{75}$ or 0.947 or 0.9466…	**3**	**M2** for $\frac{4}{5}\times their\ \frac{19}{20}+their\ \left(\frac{1}{5}\times\frac{14}{15}\right)$ or **M1** for $\frac{4}{5}\times their\ \frac{19}{20}$ or $their\ \left(\frac{1}{5}\times\frac{14}{15}\right)$

PAPER-4

Q.6

(a)	**(i)**	13 | 1 1 4 14 | 1 2 7 7 15 | 1 2 2 3 5 9 16 | [0] 4		
		e.g. 16 | 0 represents 16.0 [years]	**2**	**B1** for correct table with 1 or 2 errors or 'correct' table but unordered leaves
			1	
	(ii)	3.3	**1**	
	(iii)	15.1	**1**	
	(b)	14.6	**2**	**M1** for $7 \div 12$ soi

Vector Transformations

1

(a)(i)	Triangle at (1, –2), (4, –2) , (3, –3)	**2**	**B1** for reflection in $y = -x$ or correct size and orientation
(a)(ii)	Rotation 90° clockwise oe [centre] (4, 1)	**3**	**B1** for each
(a)(iii)	Enlargement [Scale factor] –2 [centre] (–1, 3)	**3**	**B1** for each
(b)(i)	Translation $\begin{pmatrix} 3 \\ -4 \end{pmatrix}$	**2**	**B1** for each
(b)(ii)	Stretch $y = 1$ [invariant] factor $\frac{1}{3}$	**3**	**B1** for each

2

(a) (i)	Enlargement [factor] 0.5 oe [centre] (0, 8)	**1** **1** **1**	
(ii)	Enlargement [factor] 2 and [centre] (0, 8)	**1** **1FT**	**FT** scale factor and centre
(b) (i)	Image at (4, 4), (8, 4), (8, 6)	**2**	**M1** for $y = x$ drawn
(ii)	Image at (6, 8), (6, 6), (10, 6)	**2**	**SC1** for 90° anti-clockwise but different centre
(c)	Reflection, x-axis oe	**3**	**M2** for full method seen i.e. diagram or unit vectors. or **M1** for one of transformations correctly carried out If 0 scored, **SC1** for any reflection in answer

3 Vector Transformations

(a)(i)	$-\mathbf{a}+\mathbf{b}$ oe	1	
(a)(ii)	$-\frac{1}{4}\mathbf{a}+\frac{1}{4}\mathbf{b}$ oe	1	**FT** *their* (i)
(a)(iii)	$\frac{3}{4}\mathbf{a}+\frac{1}{4}\mathbf{b}$ oe	2	**B1** for correct unsimplified answer or a correct route
(b)	(6.5, 1.5)	3	**FT** *their* (a)(iii) **B2** for $\begin{pmatrix}6.5\\1.5\end{pmatrix}$ or **M1** for $\frac{3}{4}\times\begin{pmatrix}8\\0\end{pmatrix}+\frac{1}{4}\times\begin{pmatrix}2\\6\end{pmatrix}$ OR **B2** for (5, 3) at M or $[\overrightarrow{OM} =]\ \begin{pmatrix}5\\3\end{pmatrix}$ or **B1** for $(k, 3)$ or $(5, k)$ at M or $[\overrightarrow{OM} =]\ \begin{pmatrix}k\\3\end{pmatrix}$ or $\begin{pmatrix}5\\k\end{pmatrix}$