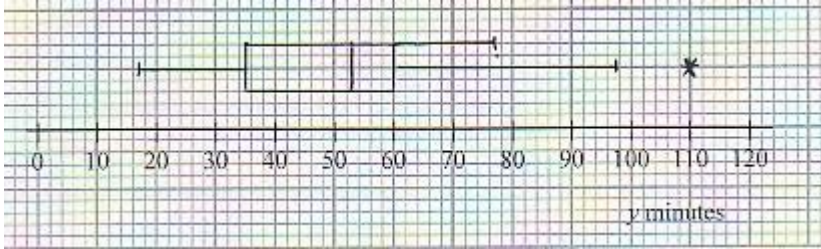


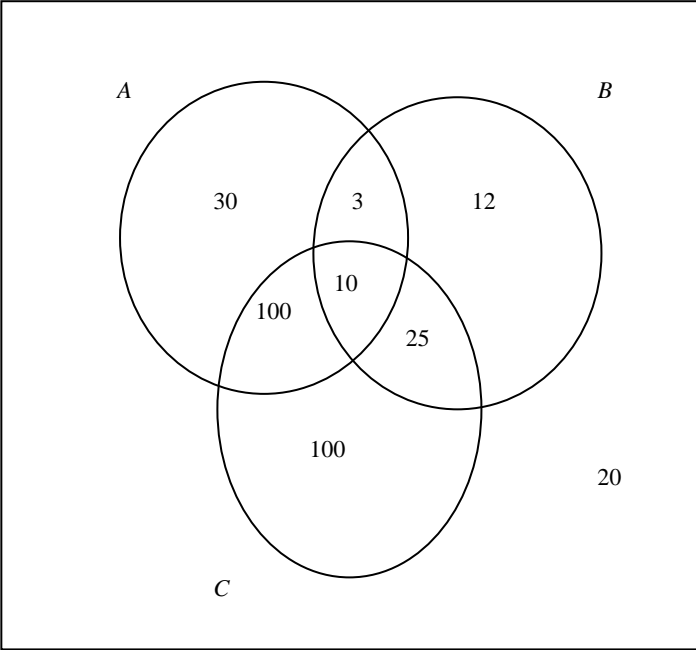
Edexcel GCE
Statistics S1
Bronze Level B1
(Mark Scheme)

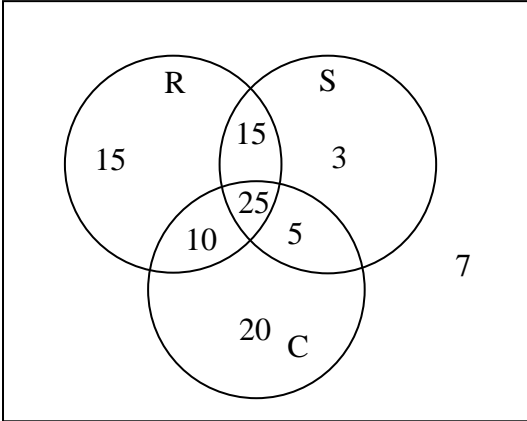
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Question Number	Scheme	Marks						
<p>1. (a)</p>	$S_{ll} = 327754.5 - \frac{4027^2}{50} = 3419.92$ $S_{lw} = 29330.5 - \frac{357.1 \times 4027}{50} = 569.666$	<p>M1 A1</p> <p>A1</p> <p>(3)</p>						
<p>(b)</p>	$r = \frac{569.666}{\sqrt{3419.92 \times 289.6}} = 0.572$	<p>awrt 0.572 or 0.573</p> <p>M1 A1</p> <p>(2)</p>						
<p>(c)</p>	<p>As the length of the salmon increases the weight increases</p>	<p>B1ft</p> <p>(1)</p>						
		<p>[6]</p>						
<p>2. (a)</p>	<p>Median is 33</p>	<p>B1</p> <p>(1)</p>						
<p>(b)</p>	<p>$Q_1 = 24, Q_3 = 40, IQR = 16$</p>	<p>B1, B1, B1</p> <p>(3)</p>						
<p>(c)</p>	<p>$Q_1 - IQR = 24 - 16 = 8$</p> <p>So 7 is only outlier</p>	<p>M1</p> <p>A1ft</p> <p>(2)</p>						
<p>(d)</p>								
		<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Box</td> <td>B1ft</td> </tr> <tr> <td>Outlier</td> <td>B1</td> </tr> <tr> <td>Whisker</td> <td>B1ft</td> </tr> </table>	Box	B1ft	Outlier	B1	Whisker	B1ft
Box	B1ft							
Outlier	B1							
Whisker	B1ft							
		<p>(3)</p> <p>[9]</p>						

Question Number	Scheme	Marks
3. (a)	$\frac{5}{21} + \frac{2k}{21} + \frac{7}{21} + \frac{k}{21} = 1$ $\frac{12+3k}{21} = 1$ $k = 3 \quad * \text{ AG}$	M1 A1 (2)
(b)	$\frac{11}{21}$	B1 (1)
(c)	$E(X) = 2 \times \frac{5}{21} + 3 \times \frac{6}{21} + 4 \times \frac{7}{21} + 6 \times \frac{1}{7}$ $= 3 \frac{11}{21} \text{ or } \frac{74}{21} \text{ or awrt } 3.52$	M1 A1 (2)
(d)	$E(X^2) = 2^2 \times \frac{5}{21} + 3^2 \times \frac{6}{21} + 4^2 \times \frac{7}{21} + 6^2 \times \frac{1}{7}$ $= 14$	M1 A1 (2)
(e)	$\text{Var}(X) = 14 - \left(3 \frac{11}{21}\right)^2$ $= 1 \frac{257}{441} \text{ or } \frac{698}{441} \text{ or awrt } 1.6$	M1 A1
	$\text{Var}(7X - 5) = 49 \text{ Var}(X)$ $= 77 \frac{5}{9} \text{ or } \frac{698}{9} \text{ or awrt } 77.6$	M1 A1 (4)
		[11]

Question Number	Scheme	Marks
4. (a)	$Q_2 = 53, Q_1 = 35, Q_3 = 60$	B1, B1, B1 (3)
(b)	$Q_3 - Q_1 = 25 \Rightarrow Q_1 - 1.5 \times 25 = -2.5$ (no outlier) $Q_3 + 1.5 \times 25 = 97.5$ (so 110 is an outlier)	M1 A1 (2)
(c)		M1 A1ft A1ft (3)
(d)	$\sum y = 461, \sum y^2 = 24\,219 \therefore S_{yy} = 24219 - \frac{461^2}{10}, = 2966.9$ (*)	B1 B1 B1cso (3)
(e)	$r = \frac{-18.3}{\sqrt{3463.6 \times 2966.9}}$ or $\frac{-18.3}{3205.64...} = -0.0057$ awrt -0.006 or -6×10^{-3}	M1 A1 (2)
(f)	r suggests correlation is close to zero so parent's claim is not justified	B1 (1) [14]

Question Number	Scheme	Marks
5. (a)	<div style="text-align: center;">  </div> <p style="text-align: center;">3 closed intersecting curves with labels 100, 100, 30, 12, 10, 3, 25 Box</p> <p>(b) $P(\text{Substance } C) = \frac{100+100+10+25}{300} = \frac{235}{300} = \frac{47}{60}$ or exact equivalent</p> <p>(c) $P(\text{All 3} A) = \frac{10}{30+3+10+100} = \frac{10}{143}$ or exact equivalent</p> <p>(d) $P(\text{Universal donor}) = \frac{20}{300} = \frac{1}{15}$ or exact equivalent</p>	<p>M1 A1A1 B1 (2)</p> <p>M1 A1ft (2)</p> <p>M1 A1ft (2)</p> <p>M1 A1 cao (2)</p> <p>[10]</p>

Question Number	Scheme	Marks
<p>6. (a)</p>	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>3 closed curves and 25 in correct place 15,10,5 15,3,20 Labels R, S, C and box</p> </div> </div>	<p>M1 A1 A1 B1 (4)</p> <p>M1 A1 (2)</p> <p>M1 A1 (2)</p> <p>M1 A1 (2)</p> <p>M1 A1 A1 (3)</p> <p>[13]</p>
<p>7. (a)</p>	<p>$(S_{fh} =) 25291 - \frac{186 \times 1085}{8}$ = <u>64.75</u> (accept 64.8)</p> <p>(b) $b = \frac{"64.75"}{39.5}$, = <u>1.6392....</u> (awrt 1.6)</p> <p>$a = \frac{1085}{8} - b \times \frac{186}{8}$, = <u>97.512....</u> (awrt 97.5)</p> <p>$h = 97.5 + 1.64f$</p> <p>(c) $h = 97.5 + 1.64 \times 25$, = <u>138~139</u></p> <p>(d) Should be reliable, since 25 cm (or f or footlength) is within the range of the data</p> <p>(e) Line is for children – a different equation would apply to adults or Children are still growing, height will increase more than foot length</p>	<p>M1 A1 (2)</p> <p>M1, A1</p> <p>M1, A1</p> <p>A1ft (5)</p> <p>M1, A1 (2)</p> <p>B1, B1 (2)</p> <p>B1 (1)</p> <p>[12]</p>

Statistics for S1 Practice Paper Bronze Level B1

Qu	Max Score	Modal score	Mean %	Mean score for students achieving grade:							
				ALL	A*	A	B	C	D	E	U
1	6		86	5.13	5.50	5.46	5.18	4.95	4.75	4.32	3.54
2	9		84	7.55		8.42	7.81	7.15	6.37	5.51	3.86
3	11		80	8.79	10.75	10.20	9.30	8.45	7.62	7.00	4.17
4	14		83	11.60		12.59	11.80	10.93	10.22	9.35	6.12
5	10		78	7.83		9.21	8.17	7.49	6.97	6.69	5.85
6	13		75	9.79	12.11	11.45	9.98	8.96	8.10	7.21	5.03
7	12		76	9.14	11.32	10.98	10.19	9.49	8.79	7.81	5.03
	75		80	59.83		68.31	62.43	57.42	52.82	47.89	33.60