Section A

Question			Full marks		Part marks	
1			Histogram	**W3**	**W1**	Frequency density proportional to 15 / 40 / 120 / 85 / 65 /40
					W1	Axis scaled –dependent on frequency divided by their class width attempted at least twice.
					W1	Bars correct height and width.
2			Explanation	**W2**	**W1**	<ABC = 93 or <ABD = 87
					W1	<u>Tangent</u> and <u>diameter</u> meet at <u>90°</u>
3			400 or 4×10^2 390 or 3.9×10^2	**W2**	**M1**	Digit 4 or 10^2 or 8/2 Or digits 39
4	**(a)**		$y = \dfrac{36}{x^2}$ or equivalent	**W2**	**M1**	$9 = \dfrac{k}{4}$ or 36 seen or $9 = \dfrac{k}{2^2}$
	(b)		6 and – 6 Or Ft √their k	**W2**	**W1**	One solution Condone √their k not evaluated
5			$\dfrac{3}{8}$ nww	**W3**	**M1** **M1**	3 8
6	**(a)**		1 and 10	**W1**		
	(b)		Graph	**W2**	**W1**	5 <u>given</u> points plotted
					W1	Smooth <u>cubic</u> curve through any 5 points.
	(c)	**(i)**	$y = 7x$	**W1**		
	(c)	**(ii)**	$y = 7x$ drawn -2.8, 0.3, 2.5 (all +/ – 0.1)	**W1** **W2**	**W1**	1 correct solution Condone coordinate form Ft intersection of $y = 7x$ with their <u>cubic</u> curve **SC1** 1 solution from $y = 7$ drawn intersecting with cubic curve
7			$\dfrac{5}{15}$ I.S.W	**W4**	**M1**	Tree diagram completed for raining/delayed and not raining/delayed branches **AND**
					M2 **Or**	$(1/3 \times 3/5) + (2/3 \times 1/5)$
					M1	$(1/3 \times 3/5)$ or for $(2/3 \times 1/5)$ ft their probabilities for M2 or M1
					A1	$\dfrac{5}{15}$ or $\dfrac{1}{3}$ or $\dfrac{75}{225}$ isw

Section B

Question		Full marks		Part marks	
8	**(a)**	$6x^2 +8x +2$	**W2**	**W1**	3 terms from $6x^2 +2x+ 6x +2$
	(b)	$6x^2 +8x +2-2x^2=142$	**M1**	**M1**	Their algebraic (a) - $2x^2$ = 142 oe
		$4x^2 +8x -140 = 0$	**M1**	**M1**	Rearrange their quadratic =0 Or divide 2 or divide 4
		Divide by 4 or $x^2 +2x – 35 = 0$	**A1**	**A1**	s.o.i. (n.w.w.)
	(c)	$(x -5)(x+7)$ x=5(and -7)	**M2** **A1**	**M1**	$(x±5)(x±7)$ If M0 then **W1** for x = 5 only
9		54	**W2**	**M1**	4.5 seen
10		d = $\frac{5e}{5-c}$ or d = $\frac{- 5e}{c-5}$	**W3**	**M1** **M1** **M1**	1st step eg cd = 5d-5e 2nd step eg cd-5d = -5e rearranged so d and e on separate sides 3rd step ft 1st step eg d = 5e/(5-c) If M0, allow **M1** for multiplying out brackets at any stage. i.e. 5d-5e
11	**(a)**	Tan (BOF) = 8/2 $(Tan^{-1}4) =75.8° - 76°$	**W1** **W1**		Or sin (BOF) = 8/8.25 Or cos (BOF) = 2/8.25 Or eg Sin^{-1} 0.97 = 75.9° - 76° eg Cos^{-1} 0.24=76° - 76.1..°
	(b) **(i)**	16.6(…)	**W3**	**M2** **M1** **A1**	$\frac{28 ×π×8.25^2}{360}$ 28 for <AOB seen in (b) **Or** $π 8.25^2$ or 213 – 214 seen 16.5 – 16.8… or 17
	(b) **(ii)**	144.6 -144.7	**W2**	**M1** **A1**	28×4 and 2×8 or 128 seen 144.5 – 144.8 or 144 or 145 Or A1 128 + their (i) If M0, **SC1** 144 + their (i)
12	**(a)**	$^3\sqrt{2}×13.5$ 1.26 × 13.5 = 17(.0…)	**M2** **A1**	**M1**	$^3\sqrt{2}$ seen or 1.25..- 1.26 (not including 1.25)
	(b)	31 to 32	**W2**	**M1**	(20×) their 1.26² or 1.58 to 1.59