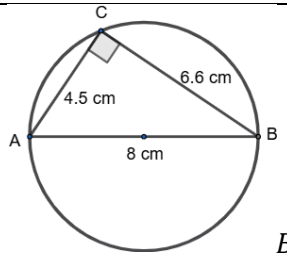
Marking Guide 0570

SECTION A

S/N		SOLUTION	MARK
1	a)	$0.000437 = 4.37x10^{-4}$	M1A1
	b)	$3.2x10^3 + 4.5x10^2$ $\Rightarrow (3.2 + 0.45)\text{ x }10^3 = 3.65\ x\ 10^3$	M1A1
2	a)	$\frac{18}{45} = \frac{9x2}{9x5} = \frac{2}{5}$	M1A1
	b)	$\frac{45}{120} x \frac{100}{1} = 37.5\%$	M1M1A1
3	a)	$(x-3)(x+5) = x^2 + 2x - 15$	M1A1
	b)	$6y^2 - 9y = 3y(2y-3)$	M1A1
4	c)	$4(x-3) = 5x + 5$ $8x - 12 = 5x + 5$ $\Rightarrow\ x = 6$	M1A1
	a)	$\frac{f}{s} = \frac{3}{2}$ $\Rightarrow s = \frac{480}{3}(2) = 240g$	M1A1
	b)	Sum of ratio $= 2 + 3 + 4 = 9$ Sum of angles $= 180°$ $\Rightarrow \frac{2}{9}(180°) = 40°, \frac{3}{9}(180°) = 60°$ and $\frac{4}{9}(180°) = 80°$	M1 M1 A1A1A1
5	a)	Mode =7	M1
	b)	3,4,6,6,7,7,7,7,9 $\Rightarrow median = 7$	M1A1
6	a)	Perimeter= $2(l + w) = 2(15 + 12) = 60m$	M1A1
	b)	Area = $12m \text{ x } 15m = 216\ m^2$	M1A1
7	a)	$f(x) = 3x - 4$ $f(2) = 3(2) - 4 = 2$	M1M1
	b)	Let $3x - 4 = y$, $\Rightarrow x = \frac{y+4}{3}$ $\therefore f^{-1}(x) = \frac{x+4}{3}$	M1A1
8		Let one receive x and the other y $x + y = 500$ *(1)* $x - y = 50$ (2) From (1) and (2) $x = 275f$ and $y = 225f$	M1 M1 A1A1
9	a)	$\vec{r} = 3i - j$ and $\vec{s} = 2i + j$	M1A1
		$\bar{r} + 2\bar{s} = 7i + j$	
	b)	$\lvert 2\vec{r} - \vec{s}\rvert = \lvert 4i - 3i\vec{s}\rvert = 5$	M1M1A1
10	a)	2 126 84 2 63 42 3 63 21 3 21 7 7 7 7 $126 = (2)^2(3)^2(7)$ $84 = (2)^2(3)(7)$	M1A1 A1
	b)	$HCF(126,84) = (2)(3)(7) = 42$	M1A1

Section B

S/N		SOLUTION	MARK
2(i)	a)	solving $\therefore x = 6$ and $y = 13$ the lines intersect at (6,13)	M1A1
	b)	Dist $= \sqrt{(1+3)^2 + (7-4)^2} = 5$ units	M1A1
	c)	$midpoint = \left((\frac{5+1}{2}), (\frac{6+2}{2})\right) = (3,4)$	M1A1
	a)	x -1 0 1 2 3 4 y 8 3 0 -1 0 8 Graph Graph: roots x=1, x=3 Intercepts: y=-1,y=3	2 3 M1
	b)	(1,0) and (4,3)	M1
	c)	$x^2 - 5x + 4 = 0$ $x^2 - 4x + 3 = x - 1$ and $(x-4)(x-1) = 0$ $x = 1\ or\ x = 4$	M1A1
	a)	Mode= 5	A1
	b)	$\sum f = 2 + 3 + 4 + 7 + 9 + 10 + 9 + 6 + 5 + 4 + 1$ $= 60$	M1M1A1
	c)	Median $\frac{5+5}{2} = 5$	M1A1
	d)	Mean $\frac{\sum fx}{\sum f} = \frac{300}{60} = 5$	M1A1

	e)	$P(>7) = P(8,9,10) = \frac{10}{60} = \frac{1}{6}$	M1A1
(ii)			1
		$BC = 6.6 \pm 0.1\ cm$ and	1 M1A1
		$\widehat{ACB} = 90°$	1
3(i)	a)	$\frac{5}{100}(25000 + 50000) = 3750f$	M1M1A1
	b)	Customer pays 75000-3750=71250f	M1A1
	c)	800x71250=57,000,000f	M1A1
	d)	3750x800=3,000,000f	M1A1
(ii)	a)	Only modems 25000x50=1,250,000f	M1A1
	b)	Only phones 50000x250=12,500,000	M1A1
	c)	All sales =1,250,000+12,500,0000=13,750,000f	M1A1
4(i)	a)	$\mathrm{Un} = 3\mathrm{n} - 1,\ \mathrm{U}_1 = 2,\ \mathrm{U}_2 = 5,\ \mathrm{U}_3 = 8$ and $\mathrm{U}_4 = 11$ 2,5,8,11,…	M1A1
	b)	$\mathrm{U}_n - U_{20} = 45$ $(3\mathrm{n} - 1) - (3 * 20 - 1) = 45$ $3\mathrm{n} - 60 = 45 \Rightarrow 3\mathrm{n} = 105$ $\therefore \mathrm{n} = 35$	M1M1A1
	c)	$\mathrm{d} = 8 - 5 = 5 - 2 = 3, \mathrm{a} = 2$ and n=20 From $S_n = \frac{n}{2}[2a + (n-1)d] = \frac{20}{2}[2(2) + 3(19)]$ $S_{20} = 610$	M1M1A1

(i)	a)	An equilateral triangle	1
	b)	$AOB = 60°$ (angle of equilateral triangle)	M1A1
	c)	$ABC = 30°$ $\Rightarrow BCA = 30°$ (base angles of isosceles triangle) $\therefore AOB = 60°$	M1A1
	d)	$ArcAB = \frac{\theta°}{360°}(2\pi r)$ $\therefore ArcAB = \frac{60°}{360°}(2\pi)(7cm) = 7.33cm$	M1A1
		M1=53, A1=45, 1=9 (107)	

Keys paper 1

1	C	11	C	21	C	31	C	41	C
2	D	12	A	22	B	32	A	42	C
3	A	13	A	23	A	33	B	43	B
4	A	14	B	24	B	34	A	44	A
5	B	15	B	25	A	35	B	45	A
6	C	16	A	26	B	36	C	46	B
7	D	17	C	27	D	37	C	47	D
8	D	18	B	28	C	38	B	48	C
9	D	19	B	29	B	39	B	49	C
10	D	20	A	30	C	40	D	50	B

GRADING

U	E	D	C	B	A
≤ 30	≤ 49.9	≤ 49.9	≤ 59.9	≤ 75	> 75