CERAMICS, COMPOSITES & CORROSION 1

MARK SCHEME

Q1.

Question	Answer		Marks
	A It is where thermal decomposition takes place.	**3**	1
	B It is where only natural substances are mixed.	**2**	1
	C It is where a natural substance is mixed with a man-made substance.	**4**	1
	D It is where limestone is obtained.	**1**	1
Total marks			4

Q2.

Question	Answer	Extra information	Marks
(a)	3		1
(b)	4		1
(c)	2		1
(d)	3		1
Total marks			4

Q3.

Question	Answer	Extra information	Marks
(a)	3		1
(b)	2		1
(c)	2		1
(d)	2		1
Total marks			4

Q4.

Question	Answer	Extra information	Marks
(a)	2		1
(b)	4		1
(c)	1		1
(d)	3		1
Total marks			4

Q5.

Question	Answer	Extra information	Marks
(a)(i)	2.5(kg)	ignore units	1
(ii)	40% (cement) **and** Test 3 because it is anomalous or because it is much lower than the other two readings	ignore units accept value not used to calculate mean ignore outlier	1 1
(iii)	as the percentage of cement increases the mass needed to break the sleeper increases	allow 'strength for 'mass needed' allow correct relationship using percentage of sand	1
(iv)	volume/percentage / amount of water	accept temperature	1
(b)	any **two** from: availability (of the raw materials) cost of the raw materials purity (of the raw materials)		2
Total marks			7

Q6.

Question	Answer	Extra information	Marks
(i)	straight line through the first, second and fourth points straight line through the last four points	allow a straight line through the last three points if the first straight line extrapolates below point four	1 1
(ii)	repeat the experiment (at each mass of aggregate) (use the results to) calculate a mean/average value (for each mass of aggregate)	do not allow repeat at other masses	1 1
(iii)	line drawn to y axis showing extrapolation correct value read from graph	allow +/- one small square do not allow 0 award 1 mark for a value of 34-40 if no extrapolation shown	1 1
(iv)	at first, the force needed to break a concrete beam increases	allow values allow at first the statement is correct allow values	1

	but the force needed to break a concrete beam then decreases		1
	mention of 400 g as the point at which the force needed changes or value from graph	allow 400g if there is no intercept on graph	1
Total marks			9