Q	Marking instructions	AO	Marks	Typical solution
12(a)	Uses the value 5 for m in the formula	3.3	M1	$T = 15 + 8 \sin (30(5) - 120)°$ $= 15 + 8 \sin 30°$
	Obtains 19°C Condone missing units	3.4	A1	$= 19°C$
	Subtotal		**2**	

Q	Marking instructions	AO	Marks	Typical solution
12(b)	Identifies the angle for sin to be a maximum or Evaluates T for $m = 6$, 7 and 8 (ignore other values)	3.4	B1	Maximum value of sin is for 90° This requires $m = 7$ July
	Obtains $m = 7$ or July (ignore incorrect month name if $m = 7$ is clearly indicated)	2.2a	B1	
	Subtotal		**2**	

Q	Marking instructions	AO	Marks	Typical solution
12(c)(i)	Identifies 15 with a suitable explanation that explicitly refers to temperatures Accept references in context to: • Translation • Base temperature	3.5c	E1	15 because this will add more to the temperatures for every month
	Subtotal		**1**	

Q	Marking instructions	AO	Marks	Typical solution
12(c)(ii)	Identifies 8 with a suitable explanation that explicitly refers to temperatures Accept references in context to: • Amplitude • Vertical stretch • Spread	3.5c	E1	8 because this will make high temperatures higher and low temperatures lower.
	Subtotal		**1**	

	Question 12 Total		**6**	