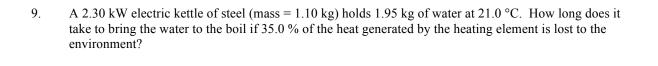
11 PHYSICS ATAR ASSIGNMENT 4: HEATING AND COOLING

NAM	E: DUE DATE:	TOTAL:	34
1.	If, during summer, today's maximum temperature is 40.0° C, and tomorrow's maximum to is 20.0° C, is today twice as hot as tomorrow? Explain your answer.	mperature	
2.	Why are burns caused by steam more serious than those caused by boiling water?		(2)
3.	Explain why a bench top in the Science laboratory feels cold when you first place your ha	nd on it.	(3)
4.	Why do you feel cold when, during a hot summer's day, you emerge from a pool or the oc reasonably strong wind is blowing? Explain your answer.	ean and a	(2)

5.	Explai	xplain, using a clear diagram, how a strong land breeze forms over Perth during the summer.				
6.	During	g the winter, when Perth has clear and cold nights around 2-4 °C, Rottnest generally has a	(3)			
0.	minim	um around 14-16 °C. Explain why there is such a difference.				
			(3)			
7.	A 65.0 Assum	kg athlete transforms chemical energy at the rate of about 4.00×10^3 W during a 1500 m run. He all of this energy is converted into the internal energy of the body tissues.				
	(a)	What maximum rise in body temperature could be expected after completing the run in 4.00 minutes? (Take $c_{body} = 3.50 \times 10^3 \text{ Jkg}^{-1}\text{K}^{-1}$)				

(4)

	(b)	Would the athlete's body temperature rise by this amount? Explain your answer.	
	(c)	What effect would a high humidity in the atmosphere have on the ability of the athlete to maintain a constant body temperature? Explain your answer.	(2)
			(3)
8.	A 125 of ice a the mix	g glass had 275 g of Coke placed into it. The temperature settled at 11.2 °C. A 30.0 g block at -4.20 °C was taken from a freezer and placed into the Coke. Estimate the final temperature of xture.	



(4)