

Question number	Answer	Notes	Marks
3 (a)	any six from: MP1. idea of equal volume of water in each bottle;	allow marks from suitable diagram	6
	MP2. place both bottles an equal distance from the heater; MP3. idea of same heater output for both bottles;	condone have 'heater setting' the same for both bottles	
	MP4. same starting temperature of water in both bottles;	allow 'measure initial temp of water'	
	MP5. measure temperature of water in both bottles after a given time;	allow measure time in for a given temperature change	
	MP6. repeat investigation (more than once);	i.e. the candidate has shown they understand that both bottles have been measured more than once	
	MP7. calculate a mean;	condone average	
	MP8. safety guidance to avoid the hazard of burn/scald/electrocution;	e.g. take care to avoid burns from heater, clean up water spillages etc.	
(b)	two lines drawn showing an increase in temperature over time;	reject whole response if both lines show a decrease ignore starting temperature ignore flat sections	2
	line identified by candidate as black is always above the line identified by candidate as silver;	lines must be labelled for this mark allow "silver" line reaching same temperature as "black" line at a later time	

Total for Question 3 = 8 marks