

Question number		Answer	Notes	Marks
3 (a) (i)		90 (K)		1
(ii)		<p>Any three of</p> <p>MP1 Idea that particles/molecules move apart;</p> <p>MP2 Idea that particles/molecules gain (kinetic) energy;</p> <p>MP3 Idea that particles/molecules move more freely;</p> <p>MP4 Idea that particles/molecules leave the liquid;</p>	<p>Ignore: molecules vibrate</p> <p>Allow: molecules spread out, take up more space</p> <p>May be shown on labelled diagram</p> <p>Allow: idea of moving faster</p> <p>Ignore: 'move more'</p> <p>Allow bonds break</p> <p>Ignore unqualified 'move more'</p> <p>Allow escape</p> <p>Ignore evaporate</p>	3
(b) (i)		<p>Any two of</p> <p>MP1 radiation / infrared;</p> <p>MP2 Idea of reflection;</p> <p>MP3 Idea of little/no absorption;</p> <p>MP4 Idea of poor emission;</p>	<p>Allow IR</p> <p>Allow bad radiator</p>	2
(ii)		<p>Any two of</p> <p>(in a vacuum there are) no atoms/molecules/particles;</p> <p>so no/poor conduction;</p> <p>so no/little convection (currents);</p>	<p>Allow:</p> <p>no 'medium'</p> <p>no 'material'</p> <p>There are no molecules to conduct = 2 marks</p> <p>There are no molecules to convect = 2 marks</p>	2

(c)		<p>Any two of</p> <p>MP1 Idea that there is cold gas/air/oxygen just above the liquid (surface);</p> <p>MP2 Idea that the gas/air/oxygen in the room is warmer;</p> <p>MP3 Idea that convection currents in air (above liquid surface) unlikely;</p> <p>MP4 Idea that (evaporated) oxygen /air / gas would insulate the surface;</p> <p>MP5 Idea that oxygen/gas would build up pressure in a sealed vessel;</p>	<p>Ignore “heat rises”</p> <p>Allow: warm air won’t fall, cool air won’t rise Ignore density arguments Allow: gas is a poor conductor Allow: flask would burst if it had a lid</p>	2
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Total for question 3 = 10 marks