

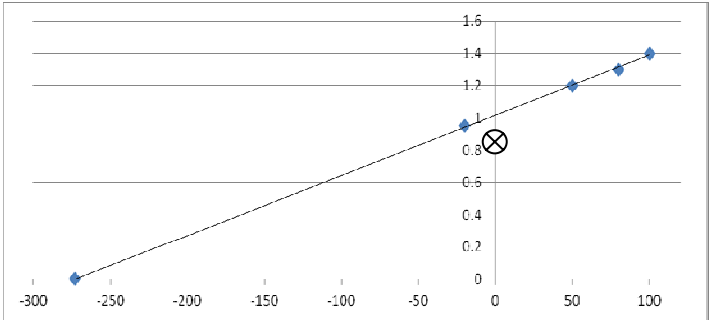
Question number	Answer	Notes	Marks
1 a	Any FIVE from: MP1. Energy (transferred) from the sun; MP2. Air over the land is heated ; MP3. Warmer air over land expands; MP4. Air becomes less dense; MP5. Therefore rises (must have connection); MP6. Cooler air over sea becomes denser; MP7. Cooler air over sea sinks; MP8. Air (from over the sea) moves inland to replace rising air;	no mark for bald convection current land heats up air reject for 1 mark <ul style="list-style-type: none"> • particles expand and /or become less dense can only be awarded if MP3 or MP4 is given ignore <ul style="list-style-type: none"> • heat rises 	5 1
b	MP1. Example of a larger particle given: e.g. ➤ smoke particles ➤ pollen MP2. Idea that larger particles move with random motion; MP3. Idea of collisions with smaller (invisible) particles;	Ignore <ul style="list-style-type: none"> • air/water particles move with random motion 	1 1

(Total for Question 1 = 8 marks)

Question number	Answer	Notes	Marks
2	Any five of: MP1. the air (molecules are/is) warmed / heated (by the coal fire); MP2. air expands / molecules move apart; MP3. air becomes less dense; MP4. hot air or less dense air rises; MP5. cooler air (from outside the furnace) displaces warm air; MP6. (above the chimney) air cools / contracts / becomes more dense; MP7. cooled air falls; MP8. Process (of convection) is repeated / continuous;	NB 'convection' is in the stem allow another gas for air -1 for explanations which include the idea that the air particles become less dense/air particles expand/eq	5

Total 5 marks

Question number		Answer	Notes	Marks									
3 (a)		<table border="1" data-bbox="516 294 1087 561"> <tr> <td data-bbox="516 294 732 435">temperature</td> <td data-bbox="732 294 913 435">point of nitrogen</td> <td data-bbox="913 294 1087 435">boiling point of water</td> </tr> <tr> <td data-bbox="516 435 732 498">in °C</td> <td data-bbox="732 435 913 498">-196</td> <td data-bbox="913 435 1087 498"></td> </tr> <tr> <td data-bbox="516 498 732 561">in Kelvin</td> <td data-bbox="732 498 913 561"></td> <td data-bbox="913 498 1087 561">373</td> </tr> </table> <p data-bbox="415 644 747 675">one mark for each correct;;</p>	temperature	point of nitrogen	boiling point of water	in °C	-196		in Kelvin		373	ignore -273	2
temperature	point of nitrogen	boiling point of water											
in °C	-196												
in Kelvin		373											

<p>3 (b) (i)</p> <p>(ii)</p>	<p>Plotting to nearest half-square (minus one for each plotting error, up to max 2 marks) ;;</p> <p>line of best fit that intersects x-axis between -250 and -300;</p> <p>point (0, 0.85) circled or otherwise indicated;</p> 	<table border="1" data-bbox="1239 188 1648 556"> <thead> <tr> <th>Temperature in °C</th> <th>Volume in litres</th> </tr> </thead> <tbody> <tr> <td>-20</td> <td>0.95</td> </tr> <tr> <td>0</td> <td>0.85</td> </tr> <tr> <td>50</td> <td>1.20</td> </tr> <tr> <td>80</td> <td>1.30</td> </tr> <tr> <td>100</td> <td>1.40</td> </tr> </tbody> </table>	Temperature in °C	Volume in litres	-20	0.95	0	0.85	50	1.20	80	1.30	100	1.40	<p>3</p> <p>1</p>
Temperature in °C	Volume in litres														
-20	0.95														
0	0.85														
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<p>b(iii)</p>	<p>Reading from graph to nearest small square (± 5 degrees);</p>		<p>1</p>												