Practice Question Set For A-Level
Subject : Chemistry
Paper-1 Topic: Physical 1_Thermodynamics

Merit Minds
www.merit-minds.com
Exam Preparation and Free Resources

Name of the Student:_____
Max. Marks : 18 Marks **Time : 18 Minutes**

Mark Schemes

Q1.

(a) (i) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6$ **1**

(ii) The negative S^- ion **1**

repels the added electron **1**

(iii) Step B is the atomisation enthalpy of sulphur **1**

Step D is the second ionisation enthalpy of calcium **1**

(iv) Electrons nearer to the nucleus **1**

Electrons removed from a positive species or more strongly attracted **1**

(v) +178 +279 +590 +1145 -200 + 539 + G + 482 = 0 **1**

G + 3013 = 0 hence G = –3013 **1**

(b) The model used assumes the ions are spherical and in a lattice **1**

The calculated value is smaller than the cycle value or stronger attraction **1**

Indicating some covalent character or ions are polarised **1**

(c) (i) For a reaction to occur $\Delta G < 0$ **1**

ΔS is positive and large as a gas is evolved **1**

$T\Delta S$ is larger than ΔH and ΔG is negative **1**

Downloaded from www.merit-minds.com

(ii) ΔS is negative

1

Four moles gaseous reactant forming or more moles of gaseous product

1

At high temperature TΔS is larger than ΔH and ΔG is positive

1

[18]

Downloaded from www.merit-minds.com