Name of the Student:_____
Max. Marks : 10 Marks **Time : 10 Minutes**

Mark Schemes

Q1.

(a) **M1** Q = (mc ΔT = 60 × 4.18 × 52.1) = 13066.68 J

M2 moles $=\left(\frac{1.31}{136}\right)= 0.00963$ mol

M3 $\frac{Q}{n} = \frac{13066.68}{0.00963} = 1356541$ (J mol^{-1})

M3 = M1 / M2

M4 ΔH = -1360 kJ mol^{-1}

M4 = - M3 /1000

Allow range -1355 to -1362

4

(b) Any 5 from the following:

M1 Value from calorimetry less exothermic/lower/smaller (than method 1 value)

M1 Allow both are less (than method 1)

M2 (Calorimetry =) because of heat/energy loss

M2 Copper absorbs some heat energy

M3 (Calorimetry =) incomplete combustion

M4 (Calorimetry =) some liquid hydrocarbon could have evaporated

M5 Mean bond enthalpies values use enthalpies taken across a range of compounds

M6 Value from bond enthalpy data ignores energy changes in vaporisation of the fuel or condensing the water

M6 Allow value from mean bond enthalpies does not include changes of state.

M6 Allow value from mean bond enthalpies use gaseous states

5

[9]

Q2.

A

The boiling point of HX increases.

[1]

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