

Please hand in on a printout of this sheet.

S 1

Write on the back if you need more space (don't crowd

Your answer
please!)

Chem Assignment: Solids

NAME: _____

S.N.: _____

1. Given the data below: a) Show a born-haber cycle for sodium oxide
b) Calculate the crystal lattice energy for sodium oxide.

$$\Delta H_f^\circ(\text{Na}_2\text{O}) = -413 \text{ kJ/mol}$$

$$\text{I.E.}_1(\text{Na}) = 495.5 \text{ kJ/mol}$$

$$\text{E.A.}_1(\text{O}) = -133 \text{ kJ/mol}$$

$$\text{I.E.}_2(\text{Na}) = 4562 \text{ kJ/mol}$$

$$\text{E.A.}_2(\text{O}) = 247 \text{ kJ/mol}$$

$$\text{I.E.}_3(\text{Na}) = 6912 \text{ kJ/mol}$$

$$\text{BDE}(\text{O}_2) = 495 \text{ kJ/mol}$$

$$\Delta H_{\text{sub}}^\circ(\text{Na}) = 105 \text{ kJ/mol}$$

$$U = -1976 \text{ kJ/mol}$$