1. Complete the following table.

	Ni	Ca	Br
# of E levels occupied?	4	4	4
# of protons?	28	20	35
Which has stronger attraction?	Ni or Ca or Br		
Which has the smaller atomic radius?	Ni or Ca or Br		
Which has higher ionization energy?	Ni or Ca or Br		
Which has higher electronegativity?	Ni or Ca or Br		

2. Identify whether an ionic bond, polar covalent bond, nonpolar covalent bond, or no bond forms with each combination of elements below.

(a) O and Cl — 3.5 3, non non — Polar Covalent
$\Delta EN = 3.5 - 3 = 0.5$

(b) Ba and Ne — metal, Noble gas — NO Bond

(c) Br and B — Non Non — Polar Covalent
2.8 2
$\Delta EN = 2.8 - 2 = 0.8$

(d) Zn and O — metal Non — ionic

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ionic Bond = metal + nonmetal ($\Delta EN > 1.7$)
polar covalent bond = non + non (ΔEN 0.31 – 1.7)
nonpolar covalent bond = non + non ($\Delta EN \leq 0.3$)
metal + metal = No Bond
Noble gas = NO Bond