10.17) EXPLAIN THE SMALL DROP IN IONIZATION ENERGY FROM $_4Be$ TO $_5Be$

A DECREASE IN IONIZATION ENERGY $\Rightarrow$ e^- IS LESS TIGHTLY BOUND

$_4Be$ HAS 1s & 2s FILLED

- EACH 2s e^- "SEES" MORE THAN +1e IN NUCLEUS.

$_5Be$ HAS 1s & 2s FILLED PLUS $1e^-$ IN 2p

- OUTER e^- IN 2p IS WELL SHIELDED SO THAT IT SEES ABOUT +1e IN NUCLEUS, BUT IT'S FARTHER AWAY

$\Rightarrow$ SINGLE 2p e^- LESS TIGHTLY BOUND

$\Rightarrow$ LOWER IONIZATION ENERGY

10.23) EXPLAIN DROPS IN E_I BETWEEN $_{48}Cd$ AND $_{49}In$ AND $_{80}Hg$ AND $_{81}Tl$

$_{48}Cd \rightarrow _{49}In$

$_{48}Cd$ HAS 1s, 2s, 2p, 3s, 3p, 4s, 3d, 4p, 5s & 4d FILLED

$\Rightarrow$ ALL e^-'s ARE DOUBLE BUNKED IN FILLED ORBITALS

$_{49}In$ HAS ONE LONELY e^- IN THE 5p.

$\Rightarrow$ WELL SHIELDED, FAR FROM NUC. $\Rightarrow$ LOOSELY BOUND

$_{80}Hg \rightarrow _{81}Tl$

$_{80}Hg$ HAS ALL THROUGH 5d FILLED

$_{81}Tl$ HAS ONE LONLY e^- IN 6p

$\Rightarrow$ WELL SHIELDED, FAR FROM NUC. $\Rightarrow$ LOOSLY BOUND