Name $\qquad$ Score $\qquad$ \%

Signature $\qquad$
ID number $\qquad$

1. (30 points) Arrange the following in order of increasing melting point: $\mathrm{CBr}_{4}, \mathrm{CH}_{3} \mathrm{OHCH}_{3}$, $\mathrm{H}_{2} \mathrm{~S}, \mathrm{CaF}_{2}, \mathrm{CH}_{4}$.
2. (30 points) Arrange the following in order of decreasing surface tension: $\mathrm{PH}_{3}, \mathrm{RbCl}, \mathrm{CF}_{4}$, $\mathrm{NH}_{3}, \mathrm{SiF}_{4}$.
3. (20 points) Name the types of forces that occur between molecules of:

CsBr
$\mathrm{H}_{2} \mathrm{O}$
$\mathrm{BF}_{3}$

HCl
4. ( 20 points) A crystal scatters x-rays of wavelength $0.9082 \AA$ at an angle of $32.84^{\circ}$. If this is third order Bragg scattering, find the distance between layers in the crystal.

