I. DIFFRACTION CONDITION

X-ray diffraction conditions are classified by the Miller Indices of the planes that "perform the diffraction". That is, the diffraction condition, $\Delta k = K = m_1 b_1 + m_2 b_2 + m_3 b_3$, is denoted by the $hkl$ diffraction conditions, where $K$ is perpendicular to $(hkl)$, the orthogonality condition, and the normalization condition is

$$d_{hkl} = \frac{2\pi}{K}$$

For the following Bravais lattices, state the different diffraction conditions in terms of constraints on $h, k, l$ (that is, $hkl$ are all even, $h+k+l=$odd integers, etc.):

A. Simple cubic
B. Body-centered cubic
C. Face-centered cubic

II. WURTZITE STRUCTURE

Problem 2.7.

III. RECIPROCAL LATTICES

Problem 2.9.

IV. BRILLOUIN ZONES

Problem 2.10.

V. DIELECTRIC TENSORS

Problem 2.12.