

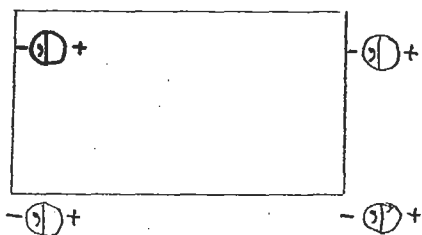
### 3.60 Symmetry, Structure and Tensor Properties of Materials

#### Problem Set #10

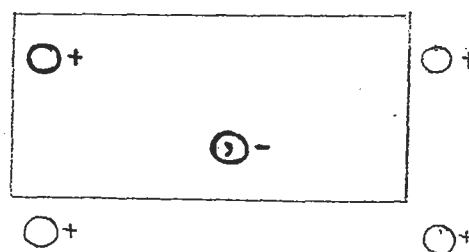
1. Sketch in the conventional symbol for the locus of the symmetry element which related the two objects depicted by heavy lines in the following sketches. (The diagrams follow the conventions used in depicting representative patterns for space groups in the International Tables for X-ray Crystallography.)

State also the coordinates of the second object, assuming that the first, from which it is generated, has general coordinates  $xyz$ .

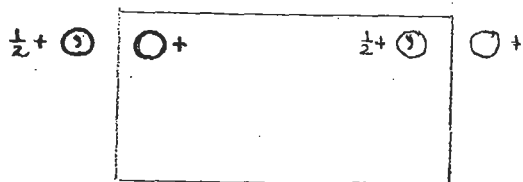
a)



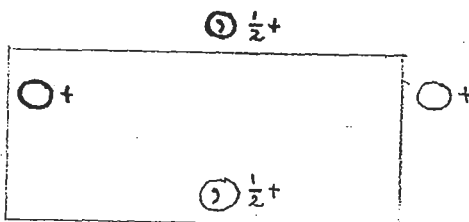
b)



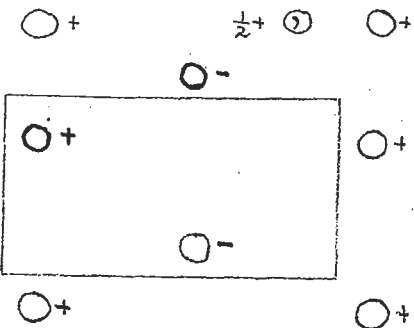
c)



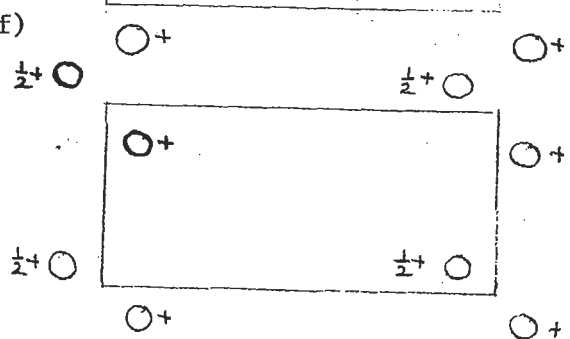
d)



e)  $\frac{1}{2}+$



f)



(2) The following diagram displays the symmetry elements in space group  $C_{2v}^{17}$  - Aba2. The symbols used to denote the space group apply when

$$c = T_3, b = T_2, a = T_1.$$

What is the correct symbol for the space group when

(a)  $c = T_1, b = T_3, a = T_2$  ?

(b)  $c = T_3, b = T_1, a = T_2$  ?

