3.1.

Consider the XOR function with $x_1, x_2 \in \{0, 1\}$

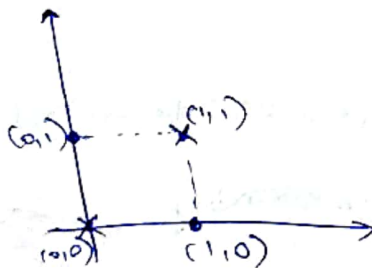| x_1	x_2	XOR (x_1, x_2)
0	0	0
1	0	1
0	1	1
1	1	0

Plotting these points in a 2-D plane :-

→ Group 0 :- (0,0), (1,1)
→ Group 1 :- (1,0), (0,1)

Linear separability condition:-

A dataset is linearly seperable if there exists a single straight line that seperate two classes such that all points of one class lie on the same side of line and all other points of other class on the other side.

Group 0 :- X
Group 1 :- •

Thus any straight line drawn in the plane that seperate one corner of the square from the other must also cut the line/plane joining the other class point.

No straight line can seperate the XOR class.

The XOR is not linearly seperable.