1)

Decision Rule:

If X1 - 7.5 < 0: Classify as A

If X2 -7.5 > 0, Classify as B

An observation with X1 = 6 and X­2 = 10 would be classified as A.

2)

The margin sizes are 2 units.

3)

Observations 6, 7, 8, 9 and 10 will receive a penalty. All observations receiving penalties are support vectors.

4)

The total penalty is 5.75.

5)

Yes, the current penalty is 5.75, increasing the allowable error to 6 allows for some margin error to increase by 0.25.

6)

The data is separable if we have diagonal lines from top left to bottom right separating the data.