1.

1. This is an average ROC curve which shows the sensitivity vs specificity. This curve describes an algorithm that performs better than a random guess as the area under the curve is 0.835 which is greater than 0.5 which is the area under the curve of a random guess.
2. Between Algorithm A and Algorithm B, Algorithm A is better because even though Algorithm B has more sensitivity in the final data, Algorithm A is consistent in the results.
3. Algorithm A is preferred over algorithm B as long as its ROC curve is above the Algorithm B’s and from the point where the Algorithm B’s curve moves above the Algorithm A, we prefer Algorithm B over Algorithm A because it has a better chance of classifying the data when compared to algorithm B.

2.

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Predicted | |
|  |  | Negative | Positive |
| Actual | Negative | 3(TN) | 2(FP) |
| Positive | 0(FN) | 5(TP) |
|  |  |  |  |
|  |  |  |  |
| Precision | 0.714286 | =TP/(TP+FP) |  |
|  |  |  |  |
|  |  |  |  |
| Recall | 1 | = TP/(TP+FN) |  |

|  |  |
| --- | --- |
| Sensitivity | 1 |
| =TP/TP+FN |  |
| Specificity | 0.6 |
| =TN/FP+TN |  |
| 1-speicifity | 0.4 |

ROC Curve:

3.