CS691 Quiz 2 Name _____

1. Why would it be bad to use accuracy to generate a decision tree on the following data? (3 points)

Sample	F1	F2	Label
1	1	1	1
2	1	0	0
3	0	1	1
4	0	0	1

2. What is the best accuracy a binary decision tree can achieve on the following data? How do you know? (3 points)

Sample	F1	F2	Label
1	0	0	1
2	0	1	0
3	1	0	1
4	1	1	1
5	1	0	0

3. What are the minimum and maximum values of entropy in a binary classification problem? Explain. (2 points)

4. Given that we have 4 binary features, what is the minimum number of samples we would need to cover all possible combinations of features? Explain. (2 points)

CS491 Quiz 2 Name _____

1. Using the greedy algorithm learned in class (with Information Gain), generate the best depth-1 decision tree for the given training data. What accuracy does your model achieve on the training data? Show your work. (8 points)

Sample	**F1**	**F2**	**F3**	**Label**
1	0	0	0	1
2	0	0	1	0
3	1	0	1	1
4	1	1	1	0
5	1	0	0	0

2. How would the model you generated in problem 1 classify the following sample? (2 points)

Sample	**F1**	**F2**	**F3**	**Label**
6	1	0	1	0