Directions – The quiz is closed book/notes. You have 10 minutes to complete it; use this paper only.

Problem 1: Recall (2pts) (Answer in one sentence only.)
What is boosting?

Problem 2: Work (8 pts) (Show all derivations/work and explain.)
In AdaBoost we combine $M$ ‘weak leaners’ to get an accurate classifier. During training, we need to select the data distribution wisely so that the classifier at each round is focusing on different sub-problems. According to AdaBoost, how should we choose the data distribution at each round?

How to combine the $M$ classifier output to get the final prediction?

Now consider that we have a multi-class problem with lots of classes ($\geq 100$ classes), is it a good idea to directly apply AdaBoost on multi-class learners?