Answer this question: After running an ANOVA and obtaining a statistically significant p-value, we might want to know exactly WHICH means are different from each other. As discussed in class and in our textbook, why would it be a bad idea to simply do t-tests on each pair of means?

It is a bad idea to simply do t-tests on each pair of means after a significant ANOVA because doing so does not control the experimentwise error rate. When you perform multiple t-tests, the probability of making at least one Type I error increases with the number of comparisons you make. This means you are more likely to incorrectly conclude that a difference exists when it actually does not. Instead, you should use special multiple comparison procedures that are designed to control the overall Type I error rate when making several pairwise comparisons.