Conditional Probability Extra Credit

A prominent university decides admissions according to the following criteria.
- Students with SAT’s under 1400 are rejected.
- Those who are still considered will have their GPA examined. Those with GPA’s 3.7 and above are accepted. Those under 3.2 are rejected.
- Those with GPA's between 3.2 and 3.7 will have their essays read by 4 admission officers. If 3 out of 4 officers like the essay, then the student is admitted. If not, the student is rejected.

Over the years, the following statistics have been compiled:
- On the average, 57% of the students who apply to that university have SAT’s 1400 or over.
- Of the students with SAT’s 1400 and over...
  (a) 58% have GPA’s 3.7 or above
  (b) 31% have GPA’s between 3.2 and 3.7
- Of the students who have their essays read, there is a 50% chance that an admission officer will take their essay.

Make a tree diagram and then answer the following questions:

1. What is the probability that a student is accepted?
2. What is the probability that a student that was accepted had a GPA of 3.7 or above?
3. What is the probability that if a student was accepted he got in because of his essays.
4. What is the probability that if a student was rejected it was because of his essays.
5. What is the probability that a student got accepted if his SAT was 1400 or above?