1) (5pts) For the below two cations:

- Draw all the lone pairs on the following chemical species.
- Which has more ring strain?
- Which has more chemical bonds?
- Draw curly arrows to show how these species interconvert.
- Which is the more stable cation?

(There is a bonus point if you can explain how you can provide experimental support for your selection of the most stable cation).
Answer 3 of the following 4 mechanism questions, each worth 5 points.

3 x 5 = 15 points
2) Write the mechanism for a Baeyer Villager oxidation of a cyclic ketone.
3) Draw the mechanism for the following transformation.
4) Write the correct acid catalyzed mechanism for this rearrangement.
5) Write a mechanism to explain the formation of all three alkene products.
1) (5pts) For the below two cations:

- Draw all the lone pairs on the following chemical species.
- Which has more ring strain? **Right hand side**
- Which has more chemical bonds? **Right hand side**
- Draw curly arrows to show how these species interconvert.
- Which is the more stable cation? **Right hand side**

(There is a bonus point if you can explain how you can experimentally verify your selection of the most stable cation).
2) Write the mechanism for a Baeyer Villager oxidation of a cyclic ketone.
3) Draw the mechanism for the following transformation.
4) Write the correct acid catalyzed mechanism for this rearrangement.
5) Write a mechanism to explain the formation of all three alkene products.