Engine Development Intern Screening Questions

Due to a high number of applications, the internship positions at Liquid Piston are competitive. The below screening questions will assist us in an efficient interview process. In lieu of a cover letter, please answer these questions in a format of your choice.

1) On your first day, you are asked to design a rotor for XMv3 (the 3 horsepower X engine). Please create a list of questions and additional information you would need from your manager in order to fully complete this task.

2) Show/describe your experience in the most "in depth" area of your expertise. How did you become interested in this niche? What do you know that sets you apart from other students? Note: A bad answer is saying something like "engine development". A good answer is very specific, such as "heat treatment of 4140 steel" or "CFD of turbulent gas flows" or "FEA of engine crankshafts". We are looking for your depth of knowledge, so please go into detail as much as you would like. A prior work portfolio or Sr. Research Paper is an acceptable answer to this question, as long as you specify which work was personally yours, if a group project.

3) Please describe a time when your communication skills were most challenged, and the outcome. Prior LPI interns have rated communication skills as the most helpful requisite for success, so experience with challenges in this area will stand out.

3a) What is your overall philosophy on teamwork?

4) Please read our SAE paper titled "Development of the XMv3 High Efficiency Cycloidal Engine", which you may obtain through your university or by emailing hr@liquidpiston.com. Keep a list of your notes/questions/suggestions, and include with your application.

5) Please describe specifically what you think you can contribute to Liquid Piston, based on the information you have so far. What do you expect to learn at LiquidPiston? What is the goal of your internship? Where do you see yourself 5 years from now, 10 years?

6) Rate your expertise, relative to other students, in the following areas:

A) I am able to use X% of of Solidworks's functionality

B) I am able to use Y% of Solidworks Simulation's functionality

C) I have used Matlab extensively in my education, and feel very comfortable coding independently to solve complex engineering problems

D) I have personally rebuilt an engine or other expensive mechanical device

E) I have designed parts which were later produced by a 3rd party machine shop

7) Is there anything else we should know? Please let us know what makes you unique and well suited for this internship.