**LEGO Robotics SBA Review**

*Directions: Answer the following questions in complete sentence form on this word document. Make sure and save the file in you U drive. Failure to properly save your work will result in a zero.*

1. Explain each step of the engineering design process in order. Make sure to describe the purpose and what is done at each step.
2. List all of the sensors that have been used in our LEGO robotics course. Descibe the purpose, use and create a scenario in which each sensor would be utilized.
3. Define *prototype*.
4. Explain the use of gearing up and gearing deown. Be sure to explain HOW you would do each.
5. Describe the steps on how to find the gear ratio.
6. Why is it important to follow the engineering design process? Explain it’s significance.
7. Compare and contrast kinetic and potential energy. Give an example of each.
8. Define and describe the center of gravity. Why is it important with LEGO robots?
9. What is force? Explain friction and gravity and how they directly impact engineering.
10. Explain the *driven* and the *driving gear.*
11. Explain the use of a simple machine. List each simple machine and how they work.
12. What is the use of a loop block? And give a scenario in which it would be best to program uising it. What is a wait block? When would it be used?
13. What is the difference between a pivot and swing turn? Explain.
14. Give one situation when it would be best to use an ultrasonic sensor as opposed to a touch sensor.
15. Essay question: Robotics and programming are two tools that are more readily being used in our society today. In the future, these are going to become increasingly relevant to our lives and society. In thirty years, where do you see our technology going? What types of personal devices(cell phones, pagers, beepers, watches, laptops, tablets, etc) do you think people will use? Where do you see our technology and how people in America will use technology in 2045?