Lab 1

In Lab

Question 3.1) 12.5V
Question 3.2) If one cell is below 3.5V
Question 3.3)

Question 3.4)

- Pitch: 0°
- Roll: 0°
- Yaw: 250°

Question 3.5)

- Pitch
  - Max: 90°
  - Min: -90°
- Roll
  - Max: 60°
  - Min: -60°

Question 3.6)

1) Tilted on one leg
   a. Roll: 18°
   b. Pitch: 30°
   c. Yaw: 247°
2) Nosedive
   a. Roll: 5°
   b. Pitch: -45°
   c. Yaw: 241°

Question 3.7)
The IMU can detect altitude using the barometer, and by using its 9-axis inertial measurement unit, the accelerometer can tell you which direction the velocity is going while the gyroscope can measure determine your rotation, and the magnetometer can determine the direction using magnetic fields. However, the accelerometer can't measure position, orientation, or magnitude of velocity; the gyroscope can't measure orientation, and the magnetometer is faulty indoors or in areas with a ferrous metal objects or near electromagnets.

Question 3.8)

1) Pitch: -90°
2) Roll: 0°
3) X - 9.81
4) Y - 0
5) Z – 0

Question 3.9)

Question 3.10) A and C are spinning counter-clockwise
B and D are spinning clockwise