Lab 1

Pre-Lab

Question 2.1) For the quadcopter to stay at the same altitude in the air, it must have an equal force pushing both upwards and downwards it. One of the pairs push the air downwards while the other pair pushes air upwards, creating a relatively equal force on both sides. It also keeps the quadcopter stable when changing altitude because not all the air is being pushed in one direction.

Question 2.2) A PWM signal is displayed as a periodic square wave that is generated by the Beagle Bone Blue board. Each cycle of the wave can be controlled to express a percentage value using a digital signal. This, in turn, controls the speed of the motors.

Question 2.3) If you wanted the quadcopter to yaw while hovering, you would set motors B and D at a higher throttle speed than motors A and C or vice versa. For example, setting motors B and D to a 75% throttle speed and A and C to a 45% throttle speed, the quadcopter would yaw in the clockwise direction.

Question 2.4)

- 85% duty cycle
- 1.7 ms