NOTE:

- The assignment can be done as a team (the same team as the project teams)
- Each team can submit the solution once (all students need not submit)
- Please clearly mention the names of all team members and roll numbers in Pg.1

Problem-1 (5 marks): Choose critical parts (motor, ESC, Battery, Propeller) for an Octacopter (8 motor drone)

Total M = 40Kg; Within which 7.5Kg Payload, 0.5Kg electronics.
Choose peak thrust capability to be more than 70Kg
Flight time = 60min or above
The remaining weight (30Kg) is including the following weights:

1. Motors
2. ESC (electronic speed controllers)
3. Batteries
4. Propellers
5. Chassis (budget realistically and try to justify)

Example names to search:

Brushless motor and ESC:	**Servo motors:**	**Propellers:**	**Batteries:**	**Websites:**
T-Motor Tarot Emax Turnigy	Dynamixel Towerpro Tamiya T-Motor Emax	T-Motor Turnigy APC	Skycell / GenX Orange Turnigy Nanotech Tattu	Robu Robokits Rhydolabs Thinkrobotics Hobbyking

Problem-2 (5 marks): Choose critical parts (motor, Battery) for a 6-wheeled moon rover

Total M = 40Kg; Within which 20Kg Payload, 5Kg electronics.
Max speed = 0.5m/s
Wheel radius = 0.2m
Max acceleration = 0 to full speed in 4 sec
Terrain slope to climb = 30 degree max
Wheel friction coefficient (rolling friction) = 0.04

Battery has to be designed to last for at least a day climbing a 30 degree slope continuously.
NOTE: Each wheel should be able to give the full torque, considering that any wheel may slip at any time