

- Q.2. Consider a vehicle moving along a flat road. Draw the graphs of the aerodynamic force, rolling resistance force and total resistance force versus longitudinal speed. Use the following vehicle parameters in the table below. At the speed of 20km/hr and 80km/hr, find the percentage of aerodynamics force from the total resistance force. Determine the approximate motor ratings corresponding to these speeds. 12 Marks

$$\rho_a = 1.2 \frac{kg}{m^3}$$

$$C_d = 0.3$$

$$A_f = 2.1 m^2$$

$$M = 1200 kg$$

$$\mu_R = 0.015$$