Module 18: Assignment
Testing For Ev Vehicles

Problem Statement:

You're a transportation engineer with a passion for advancing sustainable mobility solutions. Recently, you've been assigned to evaluate an exciting new electric vehicle (EV) prototype. Your role is to delve into the intricacies of the EV's performance, focusing on key parameters such as mass, energy consumption, and range. Your assessment will provide invaluable insights into the prototype's potential for revolutionizing the future of transportation.

Tasks To Be Performed:

1. Gross Vehicle Mass:

Given:

- Kerb weight of the vehicle = 1500 kilograms (kg)
- Payload capacity = 500 kilograms (kg)

Calculate the gross vehicle mass by considering the kerb weight of the vehicle and its payload capacity.

2. Measurement of Electrical Energy Consumption:

During a test drive, the electric vehicle consumed a total of 60,000 watt-hours of energy. The distance covered during the test was 200 kilometers. Calculate the electric energy consumption.

3. Range of the Electric Vehicle:

Given:

- Battery size of the electric vehicle = 50 kilowatt-hours (kWh)
- Efficiency of the electric vehicle = 0.2 kilowatt-hours per kilometer (kWh/km)

Calculate the estimated range of the electric vehicle based on its battery size and efficiency, providing insights into its operational capabilities on a full charge.