

ANSWER ALL QUESTIONS on this paper. Marks: 20% each. Total: 100%

Question 1 – Electric Vehicle Developments



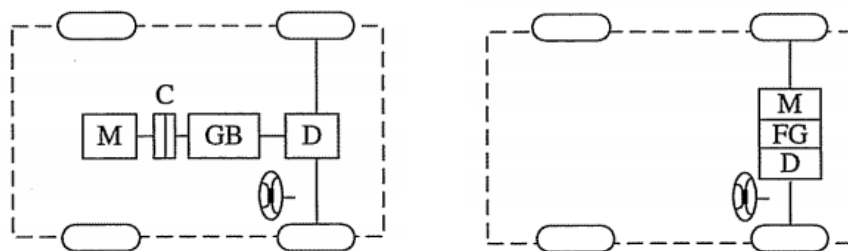
An electric vehicle is going up and down the mountain on a twisted road shown on the left picture.

Draw a graph of “Torque -Speed Requirements of Typical Driving Cycles” for this kind of trip.

In your graph, identify and explain the driving conditions of the groups of dots.

Answer

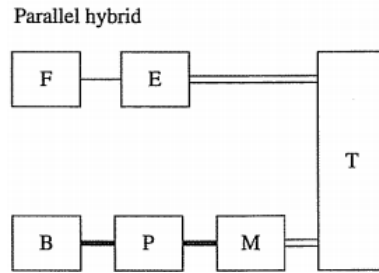
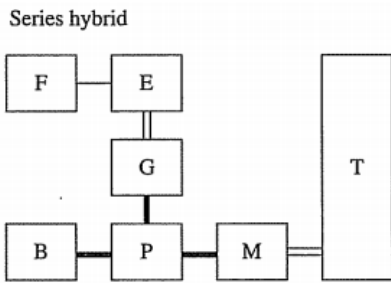
Question 2 – Electric Vehicle Systems



Give 4 key improvements the RIGHT configuration has, over the LEFT configuration, and explain why.

- 1.
- 2.
- 3.
- 4.

Question 3 – Hybrid Electric Vehicles



TWO Advantages Series Hybrid has over Parallel Hybrid

- 1.
- 2.

TWO Advantages Parallel Hybrid has over Series Hybrid

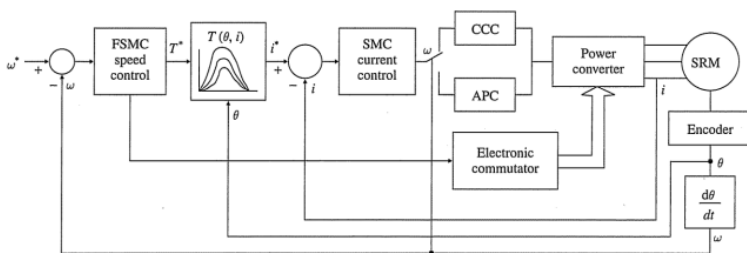
- 1.
- 2.

Question 4 – Electric Vehicle Propulsion

4 reasons why Brush Type DC motor is not suitable for EV application:

- 1.
- 2.
- 3.
- 4.

Question 5 – Electric Motor for EV



(a) What are the major differences between CCC drive and APC drive?

(b) Why is there a need for two different drive schemes (APC & CCC) in one motor drive system?