

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, April/May 2018

Course: Alternate fuel for Automobiles (ADEG451)
Program: B. Tech (ADE)
Time: 03 hrs.

Semester: VIII

Max. Marks: 100

Instructions:

SECTION A
Answer all questions

S. No.		Marks	CO
Q 1	Differentiate ultra-capacitors over batteries for hybrid electrical vehicle applications.	4	CO6
Q 2	Explain alcohols as alternate fuels for IC engines bringing out their merits and demerits.	4	CO3
Q 3	Describe major advantages and disadvantages of Lead-Acid batteries for Hybrid vehicle system application.	4	CO5
Q 4	Explain motivation for the search for Alternate fuels.	4	CO1
Q 5	Describe power flow of parallel hybrid vehicle.	4	CO6

SECTION B
Answer all questions

Q 6	Describe the possibility of using reformulated gasoline and water gasoline mixture as alternate fuel.	10	CO3
Q 7	Illustrate Nicle-Cadmium (NiCd) batteries for Hybrid vehicle system.	10	CO2
Q 8	Explain the possibilities of using dual – fuel systems in engines.	10	
Q 9	Explain LPG being used as alternate fuel in SI engine. <p style="text-align: center;">OR</p> Describe any six typical hybrid electrical vehicle control problems.	10	CO3 CO6

SECTION-C
Answer all questions

Q 10	Draw layout of rear wheel drive series hybrid, explain its components.	20	CO5
Q 11	a) Explain the two methods by which hydrgen can be used in CI engine. b) Explain with sketch Compressed Natural Gas Fumigation	20	CO3 CO2

OR

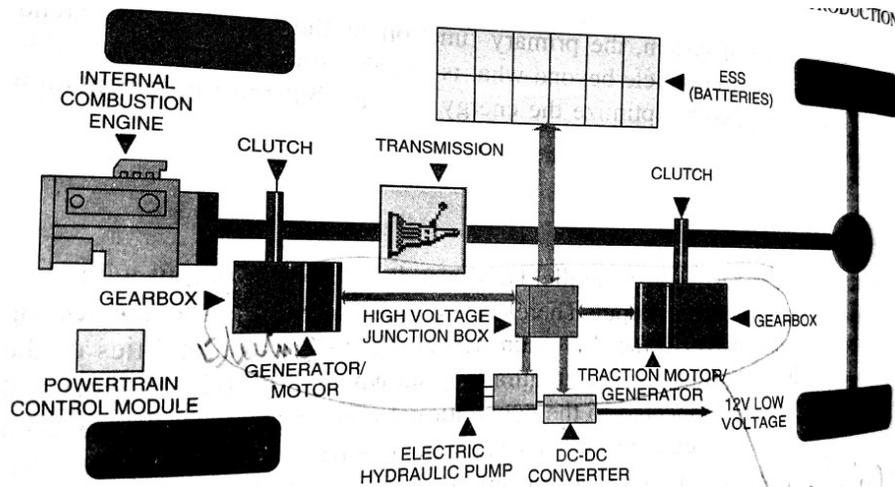


Figure-1

Explain the following parts; also identify series and parallel transmission paths from figure-1.

- Regenerative Braking
- Energy Storage System Requirements for Hybrid Vehicles
- Flywheel in Hybrid Vehicle
- Transmission System in Hybrid Vehicle

CO5