

Reg.No:

--	--	--	--	--	--	--	--



SNS College of Technology, Coimbatore-35.
(Autonomous)

B.E/B.Tech- Internal Assessment -II
Academic Year 2023-2024 (Odd)

Seventh Semester

Open Elective

19EE0302- INTRODUCTION TO HYBRID AND ELECTRIC VEHICLES

Time: 1 ½ Hours

Maximum Marks: 50



Answer All Questions

PART - A (5x 2 = 10 Marks)

- | | | |
|--|-----|-----|
| 1. List the major components used in electric vehicles. | CO2 | REM |
| 2. Build the control block diagram of Switch Reluctance Motor | CO2 | APP |
| 3. How the drive system efficiency related to electric vehicle performance | CO3 | REM |
| 4. Define Battery SOC. | CO3 | UND |
| 5. Compare Super Capacitor with Fuel cell for EVs. | CO3 | UND |

PART - B (13 x 2 = 26 Marks)

- | | | | |
|---|----|-----|-----|
| 6. (a) Explain the construction and working principle of DC motors used in Electric Vehicle with neat diagram
(OR) | 13 | CO2 | UND |
| 6. (b) Outline the working principle of PMDC motors used in Electric Vehicle and sketch the drive module. | 13 | CO2 | UND |
| 7. (a) Identify the Fuel Cell based energy storage and its analysis in detail for electric vehicles.
(OR) | 13 | CO3 | APP |
| 7. (b) Experiment with Flywheel based energy storage in modern electric vehicles | 13 | CO3 | APP |

PART – C (14*1 = 14 Marks)

- | | | | |
|---|----|-----|-----|
| 8. (a) Develop the concept of parallel and series configuration of Electric Vehicle with neat diagram
(OR) | 14 | CO2 | APP |
| 8. (b) Make use of different energy storage devices, how Hybridization technology implemented in EVs with proper explanation. | 14 | CO3 | APP |

Abbreviations:- REM-Remembering, UND-Understanding, APP-Applying, ANA-Analyzing, EVA-Evaluating, CRE-Creating

Reg.No:

--	--	--	--	--	--	--



SNS College of Technology, Coimbatore-35.
(Autonomous)

B.E/B.Tech- Internal Assessment -II

Academic Year 2023-2024 (Odd)

Seventh Semester

Electrical and Electronics Engineering

19EE0302- INTRODUCTION TO HYBRID AND ELECTRIC VEHICLES

Time: 1 ½ Hours

Maximum Marks: 50

B

Answer All Questions

PART - A (5x 2 = 10 Marks)

- | | | |
|--|-----|-----|
| 1. List the major components used in hybrid vehicles. | CO2 | REM |
| 2. Draw the control block diagram of Permanent Magnet Motor | CO2 | UND |
| 3. How the drive system efficiency related to hybrid vehicle performance | CO3 | REM |
| 4. Define Battery DOD. | CO3 | UND |
| 5. Compare Super Capacitor with flywheel for EVs. | CO3 | UND |

PART - B (13 x 2 = 26 Marks)

- | | | | |
|--|----|-----|-----|
| 6. (a) Explain the construction and working principle of Induction motors used in Electric Vehicle with neat diagram
(OR) | 13 | CO2 | UND |
| 6. (b) Outline the working principle of SRM motors used in Electric Vehicle and sketch the drive module | 13 | CO2 | UND |
| 7. (a) Identify the Battery based energy storage and its analysis in detail for electric vehicles
(OR) | 13 | CO3 | APP |
| 7. (b) Experiment with Super capacitor based energy storage in modern electric vehicles | 13 | CO3 | APP |

PART – C (14*1 = 14 Marks)

- | | | | |
|---|----|-----|-----|
| 8. (a) Identify the Energy Storage Requirements in Hybrid and Electric Vehicles with proper examples.
(OR) | 14 | CO2 | APP |
| 8. (b) Build the power flow control in hybrid drive-train topologies and explain in details. | 14 | CO3 | APP |

Abbreviations:- **REM**-Remembering, **UND**-Understanding, **APP**-Applying, **ANA**-Analyzing, **EVA**-Evaluating, **CRE**-Creating