

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE, APRIL – 2026**

ELECTRIC VEHICLES

[Maximum Marks: 75]

[Time: 3 Hours]

PART-A

I. Answer ‘all’ the following questions in one word or one sentence. Each question carries ‘one’ mark.

(9 x 1 = 9 Marks)

		Module Outcome	Cognitive level
1.	In which vehicle uses both internal combustion engine and battery powered motor power train.	M1.02	R
2.	A----- is a type of electric motor that operates based on the principle of magnetic reluctance.	M1.04	R
3.	An Electric vehicle consists of several-----for proper functioning.	M2.01	R
4.	----- brakes work by reversing electric motors that propel a vehicle	M2.04	U
5.	The----- are made of activated carbon and have an energy density of six watt-hours per kilogram.	M3.01	R
6.	The ----- transforms the battery's direct current into alternating current and regulates the energy flow from the battery.	M3.03	U
7.	----- is a power supply device that supplies electrical power for recharging plug-in electric vehicles	M3.04	R
8.	-----refers to a charging system where electric vehicles, charging stations and charging operators share data connections	M4.01	R
9.	----- programs for EV s aim to balance energy supply and demand by adjusting EV charging rates in response to grid conditions.	M4.02	U

PART-B

II. Answer any ‘eight’ questions from the following. Each question carries ‘three’ marks.

(8 x 3 = 24 Marks)

		Module Outcome	Cognitive level
1.	List the benefits of EV including environmental impacts.	M1.01	R
2.	List the classification of electric vehicles motors.	M1.04	R
3.	Explain general configuration of electric vehicles.	M2.02	U
4.	Define hybrid braking.	M2.04	R
5.	Explain energy storing device used in EV and HEV.	M3.01	U
6.	List the battery charging technologies used in EV.	M3.02	R
7.	List the power electronics converters for EV.	M3.03	R
8.	Define V2H technology.	M4.01	R
9.	Explain solar energy based EV charging stations.	M4.03	U
10.	Explain battery disposal and recycling.	M4.04	U

PART-C

Answer 'all' questions from the following. Each question carries 'seven' marks.

(6 x 7 = 42 Marks)

		Module Outcome	Cognitive level
III.	Differentiate between electric vehicle and internal combustion engine.	M1.02	U
	OR		
IV.	Discuss the State Policies, subsidies, and incentives for electric vehicles.	M1.03	U
V.	Classify components of electric vehicles subsystems.	M2.01	U
	OR		
VI.	Discuss the regenerative braking system with a neat sketch.	M2.04	U
VII.	Explain the energy storage technologies in EV and HEV.	M3.01	U
	OR		
VIII.	Discuss the Battery charging Technologies in EV's.	M3.02	U
IX.	Explain the control systems used in EV's.	M3.03	U
	OR		
X.	Identify the components and requirements for EV charging stations.	M3.04	U
XI.	Explain smart charging system used in EV's.	M4.01	U
	OR		
XII.	Explain Cost estimate of an EV charging station.	M4.02	U
XIII.	Discuss renewable energy based EV charging stations.	M4.03	U
	OR		
XIV.	Describe V2V and V2G technologies in detail.	M4.01	U
