

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/  
COMMERCIAL PRACTICE, APRIL - 2025**

**ELECTRIC VEHICLE**

[Maximum marks: 75]

[Time: 3 Hours]

**PART A**

**I. Answer all the following questions in one word or one sentence. Each question carries 1 mark.**

**(9 x 1 = 9 Marks)**

		Module outcome	Cognitive level
1	..... replaces the Internal Combustion engine (IC engine) in EV.	M1.01	R
2	FCEV stands for .....	M1.02	R
3	The power from IC engine and electric motor added together by ..... in parallel HEV.	M2.02	R
4	Hybrid electric vehicle integrate both ..... and an electric motor for propulsion.	M2.03	R
5	Write any one type of lithium battery.	M3.01	R
6	..... stores electrical energy in EV.	M3.02	R
7	In an electric drive vehicle, the ..... battery provides electricity to power vehicle accessories.	M3.02	R
8	DC charging is faster than ..... charging.	M4.01	R
9	V2V stands for .....	M4.02	R

**PART B**

**II. Answer any eight questions from the following. Each question carries 3 marks.**

**(8 x 3 = 24 Marks)**

		Module outcome	Cognitive level
1	List the main components of battery electric vehicle.	M1.02	U
2	Draw the block diagram of plug in hybrid vehicle.	M1.03	U
3	Name the components in electric propulsion subsystem.	M2.01	R
4	List three types of hybrid electric drive train configurations.	M2.02	R
5	Write a short note on Lead acid batteries.	M3.01	U
6	List power electronics converters used in EV.	M3.03	U
7	Name any three types of charging connectors in EV.	M3.04	U

8	Name any three smart charging technologies for EV.	M4.01	U
9	List the factors consider for the estimating the cost of an EV charging.	M4.02	U
10	Categorize the common faults of EV.	M4.04	R

### PART C

**Answer all questions. Each question carries seven marks.**

**(6 x 7 = 42 Marks)**

		<b>Module outcome</b>	<b>Cognitive level</b>
III	Discuss the benefits of using EV.	M1.01	R
	<b>OR</b>		
IV	Explain briefly the objectives of FAME 1 and FAME 2 policy.	M1.03	R
V	Discuss classification of electric vehicles.	M1.02	U
	<b>OR</b>		
VI	Explain briefly different types of motors used in electric vehicles.	M1.04	U
VII	Draw the lay out and explain any one hybrid configuration in HEV.	M2.02	U
	<b>OR</b>		
VIII	Briefly explain any two modes based on the power flow control in series hybrid EV with neat block diagram.	M2.03	U
IX	Explain briefly subsystems in electric vehicle.	M2.01	U
	<b>OR</b>		
X	Explain briefly with neat block diagram of EV configuration with clutch, gear box and differential.	M2.02	U
XI	List and explain briefly Lithium batteries.	M3.02	R
	<b>OR</b>		
XII	Briefly explain power electronics converters in EV.	M3.03	R
XIII	Explain briefly smart charging technologies of EV.	M4.01	U
	<b>OR</b>		
XIV	Explain briefly repairing of battery and charging system of EV.	M4.04	U

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