

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Course Code & Name : **23EE0302-Electric and Hybrid Vehicles**

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UNIT 3: ELECTRIC PROPULSION UNIT

QUESTION BANK

PART A – TWO MARK QUESTIONS

S. No.	Question	Bloom's Taxonomy Level	Industry Reference / GATE
1	List any two electric components used in hybrid and electric vehicles.	Remember	Tesla 2023, Nvidia 2022
2	State the role of power electronic converters in electric propulsion systems.	Remember	Apple 2023, GATE 2020
3	Why are DC motor drives rarely used in modern electric vehicles?	Understanding	Google 2022
4	What is chopper control in DC motor drives?	Remember	GATE 2019
5	State one advantage of induction motor drives in EV applications.	Remember	Tesla 2023
6	Define vector control of induction motors.	Remember	Microsoft 2023, GATE 2021
7	What is a Permanent Magnet Synchronous Motor (PMSM)?	Remember	Tesla 2024, Nvidia 2023
8	Mention one drawback of PMSM drives.	Understanding	Apple 2022
9	Define switched reluctance motor (SRM).	Remember	Deloitte 2023
10	Why are SRM drives suitable for harsh operating conditions?	Application	GATE 2020
11	What is a Brushless DC (BLDC) motor?	Remember	Amazon 2023
12	State the role of electronic commutation in BLDC motors.	Remember	Oracle 2022
13	Define drive system efficiency.	Remember	GATE 2018
14	List any two losses affecting drive system efficiency.	Remember	PwC 2023
15	Why is regenerative operation important in electric motor drives?	Understanding	Tesla 2024, GATE 2021

PART B - BIG QUESTIONS (16 MARKS)

S. No.	Question	Bloom's Taxonomy Level	Industry Reference / GATE
1	Explain the electric propulsion system components used in hybrid and electric vehicles.	Remember + Analysis	Tesla 2023, GATE 2020
2	Describe the configuration and control of DC motor drives used in electric vehicles.	Application	Microsoft 2022, GATE 2019
3	Explain the configuration and vector control of induction motor drives for EV applications.	Analysis	Google 2023, GATE 2021
4	Explain the configuration and control of Permanent Magnet Synchronous Motor drives used in electric vehicles.	Analysis	Tesla 2024, Nvidia 2023
5	Discuss the configuration and control of Switched Reluctance Motor drives with merits and demerits.	Analysis	Deloitte 2023, GATE 2020
6	Compare BLDC motor drives and PMSM drives used in electric propulsion systems.	Analysis	Apple 2023, Amazon 2022