PRN No.	

Total No. of Printed Pages: 2

PAPER CODE	U225-2119D(ESE)

(AY:2024-25) May 2025 (ENDSEM) EXAM

SY (SEMESTER - II)

COURSE NAME: ELECTRIC VEHICLE **Branch: COMMON COURSE CODE: MEOEUA22239D**

SY (Pattern 2023)

Time: [1Hr 30 Min] **[Max. Marks: 40]**

(*) Instructions to candidates:

1) **Figures to the right indicate full marks. Use of scientific calculator is allowed**
2) **Use suitable data wherever required**
3) **All questions are compulsory. Solve any two sub question each from Questions 1 , 2 ,3 and 4**

Q. No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	a) Discuss the electric vehicle layout with the help of neat sketch?	[5]	1	2
	b) What is the difference between disc brakes and drum brakes, and why are disc brakes preferred in modern vehicles?	[5]	1	2
	c) Describe full hybrid electric vehicles in detail with neat sketch.	[5]	1	2
Q2	a) Illustrate how a Lead acid battery works in an electric vehicle by applying the concept of charging and discharging cycles.	[5]	2	3
	b) Articulate how cell balancing techniques in battery will be helpful in maintaining the performance of the battery in electric vehicles?	[5]	2	3
	c) How to determine state of charge (SOC) of battery using different methods?	[5]	2	3
Q3	a) Discuss the brushless DC motors in terms of their operation and suitability for electric vehicles with neat sketch.	[5]	3	2
	b) Interpret the concept of regenerative braking system with neat sketch?	[5]	3	2
	c) Interpret in-wheel-motor single-axle (IWMSA) topology in electric vehicle with the help of neat sketch.	[5]	3	2

Q4	a) Illustrate how the smart EV charging in electric vehicle helpful in preventing the range anxiety.	[5]	4	3
	b) What is the role of Wireless Sensor Networks in monitoring the critical systems of an Electric Vehicle also mention different approaches?	[5]	4	3
	c) Articulate different types of passive safety system in EVs will be helpful in preventing the accident.	[5]	4	3

Note: [BT Level 1: Remember 2: Understand 3: Apply 4: Analyze 5: Evaluate 6: Create]