K. K. Wagh Institute of Engineering Education & Research, Nashik

(An Autonomous Institute From A.Y. 2022-23)

WINTER-2025	
Exam Seat No.:	
Academic Year:2025-2026	Semester:V
Class:TY	Program:B.Tech
Branch Code:ETC	Pattern:2022
Name of Course:Automotive Electronics	Course Code:ETC223015(D)
Max. Marks:60	Duration:2.30 Hrs.

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains 2 page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.

		Marks	CO
Question No. 1			
1.	Explain the principle and construction of a starter motor. Why is a series-wound DC motor preferred for this application?	(6)	CO1
Question No. 2			
2.	Differentiate between Throttle Body Injection (TBI) and Multi-Port Fuel Injection (MPFI). Also, explain the working of an electrical fuel pump.	(6)	CO2
Question No. 3			
3a)	Explain the working of an electronic steering control system. What are its advantages over traditional hydraulic power steering?	(8)	CO3
	OR		
3b)	Describe the functions of a powertrain control system, focusing specifically on Idle-Speed Control and Transmission Control.	(8)	CO3
3c)	Explain the working of a Remote Keyless Entry (RKE) system and how it integrates with modern vehicle anti-theft systems.	(8)	CO3
	OR		
3d)	Discuss various methods and electronic systems used for improving overall engine performance and efficiency.	(8)	CO3
Question No. 4			
4a)	What is an ECU? Give two examples of ECUs found in (i) chassis electronics and (ii) body electronics, describing their functions.	(8)	CO4
	OR		
4b)	Explain the relevance of internet protocols and wireless LAN standards for modern automotive communication and diagnostics.	(8)	CO4
4c)	Explain the function, structure, and importance of the ODBII (On-Board Diagnostics II) protocol and interface.	(8)	CO4

OR

4d)	Write short notes on the features and applications of: (i) D2B (Digital Data Bus) and (ii) DSI (Distributed Systems Interface).	(8)	CO4

Question No. 5

5a)	What is a Geographical Information System (GIS)? How is it utilized effectively in modern automotive navigation systems?	(8)	CO5

OR

5b)	Differentiate between GLONASS and GNSS. Explain the purpose and working of a SBAS (Satellite-Based Augmentation System).	(8)	CO5
5c)	What are Advanced Driver-Assistance Systems (ADAS)? Describe any two such systems in detail.	(8)	CO5

OR

5d)	What is RTK (Real-Time Kinematic) positioning? How does it improve the accuracy of GPS, and why is this important for automotive applications?	(8)	CO5

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