

# GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– VIII (New) EXAMINATION – WINTER 2019

**Subject Code: 2181708**

**Date: 21/11/2019**

**Subject Name: Automotive Instrumentation**

**Time: 02:30 PM TO 05:00 PM**

**Total Marks: 70**

**Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
<b>Q.1</b>	(a) Explain throttle position sensor for automotive system.	<b>03</b>
	(b) Compare automotive vehicle system with and without ABS.	<b>04</b>
	(c) Discuss roll of EGR for exhaust emission control.	<b>07</b>
<b>Q.2</b>	(a) Discuss the need of fuel control module.	<b>03</b>
	(b) Discuss increasing roll of software in automobile system.	<b>04</b>
	(c) Explain basic functionality of ECU with suitable diagram.	<b>07</b>
	<b>OR</b>	
	(c) Discuss the roll of instrumentation in increasing the performance of automobile system.	<b>07</b>
<b>Q.3</b>	(a) Explain automotive standard Lin protocol.	<b>03</b>
	(b) Explain comfort system for automobile system.	<b>04</b>
	(c) Discuss recent trends in suspension systems with reference to automotive vehicles.	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) Explain AUTOSAR in brief.	<b>03</b>
	(b) Explain electromagnetic compatibility with reference to hardware design of automobile system.	<b>04</b>
	(c) Explain crank angle position and flow sensor sensors for automobile system.	<b>07</b>
<b>Q.4</b>	(a) Compare automotive vehicles with and without adaptive power steering.	<b>03</b>
	(b) Discuss the need of battery management system for automotive vehicles.	<b>04</b>
	(c) Explain different control algorithms used for engine management system for automotive vehicles.	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) Explain air bags for automotive vehicles in brief	<b>03</b>
	(b) Explain body electronics for automotive vehicles.	<b>04</b>
	(c) Discuss the roll of automotive subsystems and components for automotive vehicles.	<b>07</b>
<b>Q.5</b>	(a) Explain cruise control for automobile system.	<b>03</b>
	(b) Discuss traction control for automobile system.	<b>04</b>
	(c) Explain assembly process of automotive and instrumentation systems.	<b>07</b>
	<b>OR</b>	
<b>Q.5</b>	(a) Explain temperature sensors used in automotive vehicles in brief.	<b>03</b>
	(b) Explain trade-off between emission control and efficiency for automotive system.	<b>04</b>
	(c) Explain functional safety standards associated with automotive industry.	<b>07</b>

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