

Enrolment No./Seat No _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VI EXAMINATION – WINTER 2025

Subject Code:3160214

Date:19-11-2025

Subject Name:Vehicle Testing and Homologation

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.
4. Simple and non-programmable scientific calculators are allowed.

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|------|-----|--|----|
| Q.1* | (a) | What do you mean by homologation? | 03 |
| | (b) | Explain Need of vehicle testing and homologation. | 04 |
| | (c) | Explain working of rope brake dynamometer. | 07 |
| Q.2 | (a) | Explain detailed testing procedure of Fog lamp of vehicle. | 03 |
| | (b) | Write Measurement of BHP, IHP, BSFC, Thermal Efficiency of IC engine with proper notation. | 04 |
| | (c) | Classify various noise emits from the engine with reasons. | 07 |
| OR | | | |
| | (c) | What is Emission test ?Explain Orsat apparatus with neat sketch | 07 |
| Q.3 | (a) | List the various Active and Passive safety systems in vehicle? | 03 |
| | (b) | Explain procedure for brake stopping distance test. | 04 |
| | (c) | Classify dynamometer. Explain hydraulic dynamometer with sketch. | 07 |
| OR | | | |
| Q.3 | (a) | Explain Brake stopping distance. | 03 |
| | (b) | Define: Dynamometer, Brake Power & Flue Gases. | 04 |
| | (c) | Explain noise control methods in Vehicle Testing and Homologation. | 07 |
| Q.4 | (a) | Explain Spectroscopic methods. | 03 |
| | (b) | Explain testing of safety seat belt anchorages. | 04 |
| | (c) | What does it mean by Squeak, Buzz and Rattle noise. | 07 |

OR

- Q.4** (a) Explain Measurement of steering effort. 03
(b) Write short note on engine durability test. 04
(c) What is FIP calibrating? Explain FIP calibrating testing 07

- Q.5** (a) Describe AIS-037 03
(b) What do you mean by EURO standards and AIS standards? 04
(c) Explain chassis dynamometer. 07

OR

- Q.5** (a) Demonstrate gradability test 03
(b) Explain slide slip tester. 04
(c) Discuss need of vehicle inspection. 07

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VI (NEW) EXAMINATION – WINTER 2024

Subject Code:3160214

Date:28-11-2024

Subject Name:Vehicle Testing and Homologation

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.
4. Simple and non-programmable scientific calculators are allowed.

		Marks
Q.1	(a) Define Category M and Category N vehicle as per IS and AIS standard?	03
	(b) Discuss about vehicle testing organization.	04
	(c) Explain two wheel and four wheel chassis dynamometer.	07
Q.2	(a) Define: (1) Homologation (2) Indicated Power (3) Flue Gases	03
	(b) Explain measurement of fuel consumption.	04
	(c) Define dynamometer? Explain Eddy current dynamometer with sketch.	07
OR		
(c)	Explain infrared gas analyzers with sketch.	07
Q.3	(a) Explain Gradeability test.	03
	(b) Explain procedure for brake stopping distance test.	04
	(c) Explain energy consumption in conventional automobiles, performance, emission and fuel economy.	07
OR		
Q.3	(a) Explain operation of full load and part load conditions.	03
	(b) Explain steering impact test.	04
	(c) Illustrate wind tunnel testing.	07
Q.4	(a) Give example of active safety and passive safety features.	03
	(b) Explain effect of noises on human being.	04
	(c) Explain various sources of noises in an automobile vehicle.	07
OR		
Q.4	(a) Short note on vehicle testing lanes.	03
	(b) Explain types of corrosion occur within the automotive industry.	04
	(c) Explain wheel alignment testing.	07
Q.5	(a) Explain Euro standards.	03
	(b) Explain AIS-093 (code of practice for construction and approval of truck cabs and truck bodies).	04
	(c) Describe AIS-037 standards.	07
OR		
Q.5	(a) Explain AIS testing standards.	03
	(b) Explain Willan's line method.	04
	(c) What is wheel balancing? Give its importance and explain types of wheel balancing with sketch	07

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2023

Subject Code:3160214

Date:07-12-2023

Subject Name: Vehicle Testing and Homologation

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.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1 (a)** What is automotive homologation? Justify the need of automotive homologation **03**
(b) List the various testing and homologation centers across the India. Also list the testing facilities available at each organization. **04**
(c) Explain detailed testing procedure of Fog lamp of vehicle. **07**

- Q.2 (a)** Define Noise, Vibration and Harshness. **03**
(b) What does it mean by Squeak, Buzz and Rattle noise. **04**
(c) Classify various noise emits from the engine with reasons. **07**

OR

- (c)** Explain procedure for brake stopping distance test. **07**
Q.3 (a) List the various Active and Passive safety systems in vehicle? **03**
(b) Explain testing of safety seat belt anchorages. **04**
(c) Explain vehicle's wheel rim test for cornering and radial fatigue with sketch. **07**

OR

- Q.3 (a)** Define : Dynamometer, Brake Power & Flue Gases. **03**
(b) Describe measurement of IHP. **04**
(c) Explain construction and working of ORSAT apparatus method with neat sketch. **07**

- Q.4 (a)** Write short note on engine durability test. **03**
(b) Explain types of vehicle inspections. **04**
(c) Classify dynamometer. Explain hydraulic dynamometer with sketch. **07**

OR

- Q.4 (a)** What do you mean by EURO standards and AIS standards? **03**
(b) Explain ISO 26262 standards for functional safety of electrical and/or electronic systems in automobiles. **04**
(c) Explain SHED test on chassis dynamometer. **07**

- Q.5 (a)** Give the full form of following terms:1) CMVR, 2) ARAI, 3) NATRiP **03**
(b) Write Measurement of BHP, IHP, BSFC, Thermal Efficiency of IC engine with proper notation. **04**
(c) Explain working principle of wind tunnel testing. **07**

OR

- Q.5 (a)** Demonstrate gradability test. **03**
(b) What is Turning radius? Explain turning circle diameter test. **04**
(c) Explain steering effort test. **07**

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI(NEW) EXAMINATION – WINTER 2022****Subject Code:3160214****Date:15-12-2022****Subject Name:Vehicle Testing and Homologation****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.
4. Simple and non-programmable scientific calculators are allowed.

	MARKS
Q.1 (a) Explain Need of vehicle testing and homologation.	03
(b) Write Measurement of BHP, IHP, BSFC, Thermal Efficiency of IC engine with proper notation.	04
(c) Explain working of hydraulic dynamometer.	07
Q.2 (a) Explain Brake stopping distance.	03
(b) State various noise sources from vehicle and explain wind noise.	04
(c) What is Emission test ? Explain Emission test for CO and HC	07
OR	
(c) Explain Spectroscopic methods.	07
Q.3 (a) Explain Steering Impact test.	03
(b) Explain Type of hydraulic dynamometer.	04
(c) Explain Gas Chromatograph and Smoke meters.	07
OR	
Q.3 (a) Write short note on side slip tester.	03
(b) Explain noise control methods in Vehicle Testing and Homologation.	04
(c) Describe AIS-037	07
Q.4 (a) Explain Measurement of steering effort.	03
(b) Write short note on Turning circle diameter test.	04
(c) Explain Standard noise measurement methods.	07
OR	
Q.4 (a) What is the function of Vehicle Test lane for laboratory testing of vehicle.	03
(b) Difference between active safety and passive safety	04
(c) What is FIP calibrating? Explain FIP calibrating testing	07

- Q.5 (a)** Demonstrate gradability test. **03**
- (b)** Explain Pass by noise test. **04**
- (c)** Discuss need of vehicle inspection. **07**

OR

- Q.5 (a)** Explain Smoke meters. **03**
- (b)** Explain steering effort test. **04**
- (c)** Explain testing standards like; AIS testing standards, Euro Standards, SAE standards. **07**
