

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**