

GUJARAT TECHNOLOGICAL UNIVERSITY
M. E. - SEMESTER – III • EXAMINATION – SUMMER • 2013

Subject code: 731103**Date: 15-05-2013****Subject Name: Automotive Aerodynamics and Safety****Time: 10.30 am – 01.00 pm****Total Marks: 70****Instructions:**

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

- Q.1 (a)** What are the safety considerations while designing the automobile body? Explain it. **07**
- (b)** What is an aerodynamic shape analysis? Explain it. **07**
- Q.2 (a)** Explain the concept of bluff body. **07**
- (b)** Write short note on car body drag reduction. **07**
- OR**
- (b)** Explain automatic seat belt Tightner. **07**
- Q.3 (a)** Explain deformation behavior of vehicle body. **07**
- (b)** Define: (i) Square back drag (ii) Fast back drag (iii) Hatch back drag (iv) Notch back drag **07**
- OR**
- (b)** Describe the construction and working of an antilock brake system. **07**
- Q.4 (a)** Draw a central door circuit along with remote operation and brief the functional requirements of central door locking? Explain about the door lock actuators? **07**
- (b)** Explain briefly about Automobile seat belts and its recent advancements. **07**
- OR**
- Q.4 (a)** Write a short note on active safety and passive safety in automotive vehicles. **07**
- Q.4 (b)** Discuss recent advancement in different types of Air Bag system with neat sketch. **07**
- Q.5 (a)** Explain Bumper design for safety. **07**
- (b)** From the safety point of view what is the ideal location for the Fuel Tank in a Passenger car body? Explain it. **07**
- OR**
- Q.5 (a)** Write short note on speed control devices. **07**
- (b)** Explain anti-skid braking system **07**
