

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Sem-III Regular Examination January 2011

Subject code: 731103

Subject Name: Automotive Aerodynamics & Safety

Date: 10 /01 /2011

Time: 02.30 pm – 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.**

- Q.1** (a) What are the safety considerations while designing the automobile body? **07**
Explain.
- (b) Explain in detail the aerodynamic drag in automobile. **07**
- Q.2** (a) Explain the concept of bluff body. **07**
(b) Explain in detail the aerodynamic considerations in body profiling. **07**
- OR**
- (b) Write short note on collapsible steering column. **07**
- Q.3** (a) Explain how air bags are useful in interior safety of automobile. **07**
(b) Explain antiskid braking system. **07**
- OR**
- Q.3** (a) Write short note on rear vehicle object detection system. **07**
(b) Write short note on dust flow patterns at the rear. **07**
- Q.4** (a) Explain need for automobile safety. **07**
(b) Write short note on drag coefficient of cars. **07**
- OR**
- Q.4** (a) Explain automatic seat belt tightener system. **07**
(b) Write short note on Tilttable steering wheel. **07**
- Q.5** (a) Explain deformation behavior of vehicle body. **07**
(b) Write short not on aerodynamic shape analysis. **07**
- OR**
- Q.5** (a) Write short note on speed control devices. **07**
(b) Explain bumper design for safety. **07**
