Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E SEM-VII Examination-Nov/Dec.-2011

Subject code: 170206 **Date: 29/11/2011**

Subject Name: Two & Three Wheeler Technology

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)** Define the following terms: **07**

1. Front Ground Trail
2. Wheelbase
3. Rack Angle
4. Front Offset
5. Front Real Trail
6. Capsize
7. Wobble

(b) Classify the two wheelers. Also explain different types of motorcycles. **07**

Q.2 **(a)** Explain the lubrication system commonly used in two wheelers with neat sketch. **07**

(b) List down the types of final drive used in two wheelers. Also explain any of the drive with neat sketch. **07**

OR

(b) Describe the special requirements for racing bike. **07**

Q.3 **(a)** Describe kinematic and dynamic requirements of suspension system. **07**

(b) Explain construction and working of differential gearbox used for three wheeler. **07**

OR

Q.3 **(a)** Explain the law of triangulation in frame construction. **07**

(b) Describe the following design consideration carried out in suspension design. **07**

1. Ride height and preload
2. Sprung and Unsprung mass ratio

Q.4 **(a)** 1. Compare the engine based frame and pressed steel frame. **03**

2. Explain the layout of disc brake system used in bikes. **04**

(b) Explain how the following factors affect the vehicle stability: **07**

1. Trail
2. Gyroscopic effect

OR

Q.4 **(a)** 1. Compare the single cradle frame and double cradle frame. **03**

2. Explain various types of tyres used for two and three wheelers. **04**

Q.4 **(b)** Explain how the following factors affect the road holding: **07**

1. Contact Area
2. Grip

Q.5 **(a)** Describe with neat sketch: CVT **07**

(b) Elucidate selection criteria and design considerations for two wheeler & three wheeler engines **07**

OR

Q.5 **(a)** Explain trailing & leading link type suspension systems. **07**

(b) Describe the battery charging system used for three wheelers. **07**

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