GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-VII • EXAMINATION – WINTER • 2014

Subject Code: 170203			Date: 04-12-2014	
Sul Tir Inst	oject ne: 1 ructio 1. 2. 3.	Name: Vehicle Dynamics 0:30 am - 01:00 pm ns: Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	Total Marks: 7	0
Q.1	(a) (b)	Derive the equation to calculate the dynamic axle load for the Condition of four wheeler.i) When the vehicle on level ground under static condition.ii) When the vehicle on grads with low speed acceleration.Explain vehicle fixed co-ordinate system with neat sketch.	following	07 07
Q.2	(a) (b)	Explain camber thrust and aligning moment. Explain slip angle, inflation pressure and tread design. OR		07 07
	(b)	Explain power limited acceleration based on engines.		07
Q.3	(a) (b)	Explain different cases of braking forces. Explain anti-lock braking system with neat sketch.		07 07
Q.3	(a) (b)	Explain Aerodynamics forces. Explain total road loads and effect of road loads on fuel econo	omy.	07 07
Q.4	(a) (b)	Explain roll centre analysis. Explain under steer and over steer.		07 07
Q.4	(a) (b)	Explain equivalent trailing arm analysis. Explain shimmy and wobble effect of steering system.		07 07
Q.5	(a) (b)	Explain different factors affecting rolling resistance. Explain suspension isolation and suspension stiffness.		07 07
Q.5	(a) (b)	Explain yaw velocity gain and side slip angle. Explain tire cornering forces with neat sketch.		07 07
