18/05/16

Sem VIII / CBGS / AUTO / VD / M-J-16

Q.P. Code : 734302

(3 Hours) **[Total Marks : 80**

N.B. : (1) Question No **1** is **compulsory.**
(2) Answer any **four** questions from remaining.
(3) Assume suitable data ifrequired.

1. (a) Explain the working of Four Wheel Steering with neat sketches. **8**
   (b) M= 1000 Kg **8**
   Ms=727 Kg
   Wheel base= 2.286 m.
   Front/rear distribution= 40/60
   K_1 front = 21.7 KN/m
   K_2 rear = 25 KN/m

2. (a) Derive an expression for Steady state yaw response to steering input. **8**
   (b) Explain the Pressure distribution along the centerline of a car and Aerodynamic Aids. **8**

3. (a) Explain the Rolling Property of Pneumatic tires. **8**
   (b) Explain the Significance of Four Link Rear suspension **8**

4. (a) Derive an expression to prove $C_{21}=C_{12}$ with equalizing suspension system. **8**
   (b) Explain the advantages of front wheel drive with suitable vector diagram. **8**

5. (a) Explain how the self-aligning torque is developed. **8**
   (b) Draw neat sketch showing roll center of any five types of suspension Systems by graphical method **8**

6. (a) Explain the interconnected suspension system **8**
   (b) Explain variable rate leaf spring for suspension system **8**

7. Write short notes on any **four** of the following. **16**
   (a) Doubly Conjugated Points.
   (b) Suspension Motion Ratio.
   (c) Recirculation Ball Steering Box.
   (d) Conicity and Ply steer.
   (e) Aerodynamic lift.
