Scm VIII/CBSGS/AUTO/ND/M-J-17

18/05/2017

Q.P. Code :13522

Time: 3 Hrs

Max Marks: 80

NB:

1. Question No 1 is compulsory
2. Answer any three questions from remaining
3. Assume suitable data if required
4. Draw sketches to justify your answer

1.	(a)	Derive an equation for doubly conjugate point.	10
	(b)	Calculate the doubly conjugate point for the following data M= 1000 Kg M_s=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	10
2.	(a)	Derive an expression for steady state yaw response to steering input.	10
	(b)	Explain wheel Wobble and Wheel shimmy.	10
3.	(a)	Explain the cornering dynamics of pneumatic tires.	10
	b)	Explain over- steering and Under-steering.	10
4.	(a)	Derive an expression to prove C_{21}=C_{12} with equalizing suspension system.	10
	(b)	Explain the advantages of front wheel drive with suitable vector diagram.	10
5.		Write short notes on any four of the following.	10
	(a)	Road resistance.	
	(b)	Anti-Roll Bar	
	(C)	Tyre Vibration	
	(d)	Conicity and Ply steer.	
	(e)	Aerodynamic lift.	